



UNION OF SOUTH AFRICA

ANNUAL REPORT

OF THE

DEPARTMENT OF PUBLIC HEALTH

Year Ended 30th June, 1929.

Presented to both Houses of Parliament by Command of His Excellency the Governor-General.

Price 2s.

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DEPARTMENT OF PUBLIC HEALTH.

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Department of Public Health.

REPORT FOR THE YEAR ENDED 30TH JUNE, 1929.

TO THE HONOURABLE THE MINISTER OF PUBLIC HEALTH,
PRETORIA.

I have the honour to submit hereunder Report of the Department of Public Health for the year ended 30th June, 1929:—

I.—INTRODUCTORY.

Except for a severe and extensive outbreak of malaria in the Natal-Zululand coastal belt, the “health year” ended 30th June, 1929, has been comparatively quiet and free from notable occurrences in the domain of epidemic disease. Plague has been quiescent and no material extension of the known area of enzootic infection in wild rodents has occurred. An extensive epizootic, with heavy mortality amongst veld rodents, chiefly gerbilles, occurred in De Aar and neighbouring districts; this was at first thought to be plague, but was eventually found to be a new disease of rodents due to a hitherto unknown organism of the *Pasteurella* group.

During the year the Medical, Dental, and Pharmacy Act, No. 13 of 1928, came into operation, and the South African Medical Council and South African Pharmacy Board were constituted and took over, as from 1st January, 1929, the functions of the Medical Councils and Pharmacy Boards of the Cape, Transvaal, and Natal, and the Medical and Pharmacy Council of the Orange Free State, all of which became defunct on the date mentioned. The Public Health Amendment Act, No. 15 of 1928, also came into force—on 1st October, 1928—and is at present in course of being put into full operation, including the provisions regarding conscientious objectors to vaccination against smallpox; active steps are concurrently being taken to enforce the law regarding vaccination in respect of all children born since the Public Health Act, No. 36 of 1919, came into force, for whom exemption has not been obtained as provided in the new Act. The Food, Drugs, and Disinfectants Bill was passed by Parliament as Act No. 13 of 1929, and arrangements are at present being made to bring it into force, with suitable regulations thereunder, on 1st January, 1930. This Act will mark a notable advance and is certain to prove of great value in safeguarding both the health and the pockets of the public of the Union in respect of all classes of articles covered by it.

The salient features of the year from the health standpoint, and the work of the Department during the period, are briefly set out in the subsequent parts of this Report. The outstanding and urgent needs of the Union in the domain of public health and welfare may be summarized as follows—the list including those mentioned in last Annual Report, except that regarding the adulteration or misdescription of food and drugs, in respect of which very full and satisfactory provision has now been made:—

- (a) A simpler and better co-ordinated organization for administering and dealing on a national basis with local government, school medical matters, sanitation, public health, housing, hospitals, and the medical, midwifery, and nursing needs of the people.
- (b) Closer co-operation and co-ordination between authorities dealing with the preventive side of medical matters and those dealing with the treatment, care, and nursing side, and between the health staffs of the Government and local authorities on the one hand and medical practitioners on the other.
- (c) Better health, medical, hospital, and nursing services and facilities in many of the small centres and in rural areas, including native areas.
- (d) More health publicity and educative work for the dissemination of knowledge of the simple principles of healthy living, and the causes, prevention, and early recognition of diseases, amongst all races and classes of the population, including school children.
- (e) More attention to the disposal of night-soil, refuse, and manure (especially horse-manure), and the prevention of fly-breeding in most urban centres and on farms.
- (f) More attention, of an intelligent and instructed kind, on the part of parents to the care and suitable feeding of infants and children, and the dissemination amongst all classes of knowledge of the selection and proper cooking of food, and of suitable and economical dieting.
- (g) The provision, in conjunction with an adequate and efficient organization for the medical inspection of school children, of a system of medical and dental care and treatment of children of school-going age as regards preventable and remediable diseases and defects.
- (h) Better facilities for dealing with malaria, both as regards prevention and field research work, and during epidemics, including publicity and educative work amongst the populations of malarious areas.
- (i) Better provision regarding the housing of the poor, especially in the large centres, and for dealing with overcrowding and unhealthy areas.

II.—VITAL STATISTICS.

The following table summarizes the salient features of the vital statistics of the European population for each calendar year since 1920:—

TABLE A.—UNION OF SOUTH AFRICA: SUMMARY OF VITAL STATISTICS OF EUROPEAN POPULATION, 1920-1928.

Calendar Year.	European Population (estimated).	Birth Rate per 1,000 of Population.	Death Rate per 1,000 of Population.		Death Rate per 100,000 of Population from				Percentage of Total Deaths, the Cause of which was Medically Certified.	Infantile Mortality Rate (Deaths of Infants under One Year per 1,000 Live Births Registered).	Maternal Mortality Rate (Deaths of Mothers in connection with Pregnancy or Childbirth per 1,000 Live Births Registered.)	Survival Rate or Rate of Natural Increase. (Excess of Births over Deaths per 1,000 of Population).
			Actual or Crude.	Standardized.*	Diseases of Heart and Circulatory System.	Pneumonia and Bronchitis.	Cancer.	Tuberculosis (all forms).§				
1920.....	1,499,911	28·97	11·09	12·15	95·67†	113·87†	58·94†	46·00†	79·78	90·07	4·10†	17·88
1921.....	1,519,488‡	28·44	10·41	11·43	102·91	136·15	69·09	58·26	80·76	77·09	4·94	18·03
1922.....	1,556,241	27·52	9·48	10·41	97·99	127·24	70·88	47·74	82·96	72·91	5·21	18·04
1923.....	1,579,733	26·70	9·77	10·65	108·50	120·72	78·94	46·46	82·77	74·42	5·22	16·93
1924.....	1,610,774	26·29	9·62	10·44	123·92	123·79	76·36	51·59	84·74	73·73	4·75	16·67
1925.....	1,637,472	26·51	9·39	10·15	128·86	97·04	72·86	52·70	86·45	68·39	5·62	17·12
1926.....	1,676,660‡	26·16	9·59	10·28	127·21	113·44	71·18	53·41	87·76	64·82	4·56	16·57
1927.....	1,708,955	25·95	9·73	10·34	122·76	110·42	73·20	50·50	89·93	70·62	4·80	16·22
1928.....	1,738,937	25·77	10·15	10·69	133·53	127·72	77·52	50·95	89·93	70·49	4·98	15·62

* The rate which would have obtained had the age and sex distribution of the population been the same as that of England and Wales at the 1901 census, the standard usually taken for international comparisons.
† Medically certified deaths only. Rates for subsequent years calculated on total deaths registered.
‡ Actual (per census).
§ Includes Miners' Phthisis combined with Pulmonary Tuberculosis.

The last published report on the vital statistics of the Union by the Director of Census and Statistics is that for 1927; the following extracts and comparisons with other countries are of special interest:—

Area of the Union: 471,917 square miles.

Population, 1927 (estimated on basis of census enumerations of 1921 and 1926): European, 1,708,955; Bantu, 5,196,203; Asiatic, 181,233; mixed and other coloured, 573,008; total, 7,659,399.

Birth Rate: European, per 1,000 of population, 26.0. There has been a slight and continuous fall in this rate during recent years.

Other Countries: Lithuania, 29.4; Hungary, 27.3; Italy, 27.2; Canada, 24.8; Southern Rhodesia, 24.3; Australia, 21.7; U.S.A., 20.6; New Zealand, 20.3; Scotland, 19.8; France, 18.8; Germany, 18.3; England and Wales, 16.6.

Death Rate: European, per 1,000 of population, “crude,” 9.73; “standardized” (i.e. corrected for age and sex distribution so as to correspond with the international “standard” population in these respects), 10.34. This rate decreased up to 1925; since then there has been a slight rise.

Other Countries: New Zealand, 8.5; Southern Rhodesia, 9.1; Australia, 9.5; Canada, 11.4; Germany, 12.0; U.S.A., 12.2; England and Wales, 12.3; Scotland, 13.5; Hungary, 16.6; Italy, 16.8; Lithuania, 17.3; France, 17.4.

Infant Mortality Rate (i.e. deaths of European infants under one year per 1,000 births): 1927, 70.62. This rate has markedly improved since the date of Union; in 1911 it was 96. It has risen slightly since 1926.

Other Countries: New Zealand, 40; Southern Rhodesia, 47; Norway, 48; Australia, 54; Sweden, 57; Switzerland, 57; Holland, 59; England and Wales, 69; U.S.A., 73; Canada, 78; Scotland, 89; France, 97; Germany, 101; Italy, 130; Lithuania, 146; Hungary, 167.

Survival Rate or Rate of Natural Increase (i.e. excess of European births over deaths per 1,000 of the European population per annum): 16.2. This rate is also falling slowly, but is still higher than that of any other country.

Other Countries: Southern Rhodesia, 15.2; Holland, 13.9; Canada, 13.4; Australia, 12.2; Lithuania, 12.1; New Zealand, 11.8; Hungary, 10.7; Italy, 10.4; U.S.A., 8.4; Scotland, 6.3; Germany, 6.3; England and Wales, 4.3; France, 1.4.

As regards non-Europeans, the available vital statistics of the Union are very incomplete. Notification of births and deaths is compulsory only in urban areas, and in many of these, owing to the large proportion of non-European male adults temporarily resident as labourers and to other circumstances, computations of death-rates and similar statistics are useless or misleading.

For the Union as a whole, the only reliable figures available for the non-European population are those of the decennial census enumerations, the last of which took place in 1921, when the figures were as follows: Bantu, 4,697,813; Asiatic, 165,731; mixed and other coloured, 545,548; total, 5,409,092.

The estimated non-European population of the Union at 30th June, 1929, based on the 1921 census and the previous rates of natural increase, were as follows: Bantu, 5,357,843; Asiatic, 186,309; mixed and other coloured, 582,696; total, 6,126,848.

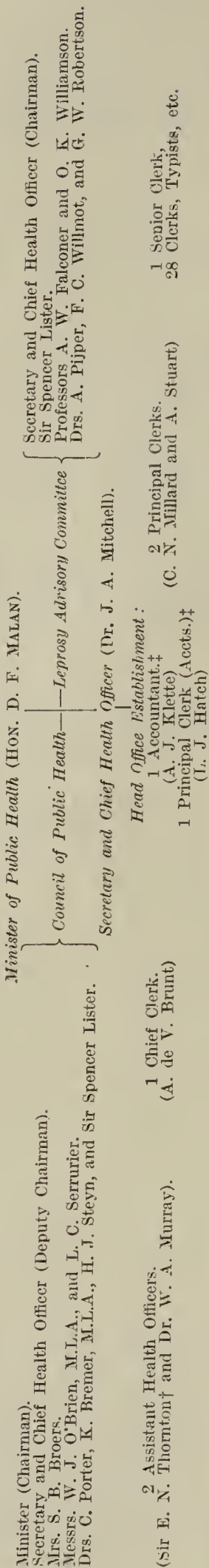
III.—ADMINISTRATIVE MATTERS.

1. *Staff.*—The accompanying chart shows the organization and functions of the Department and its principal personnel as at 30th June, 1929.

The principal changes during the year were the appointment of Dr. H. J. F. Wood as Assistant Medical Officer, Robben Island Leper Institution (three years' contract), as from 15th October, 1928, *vice* the late Dr. H. H. Budd, and the appointment of Mrs. L. W. Black as Matron, Pretoria Leper Institution, 26th April, 1929, as successor to Miss A. M. Whiteman, R.R.C., retired on superannuation. Miss Whiteman had a long and very creditable record of unselfish and devoted service, having held the post of Matron to the Institution since September, 1900.

Provision was made on the 1929-30 Estimates for the appointment of an Assistant Health Officer with headquarters at Kingwilliamstown to carry out health inspections and investigations (including leprosy work) in the Eastern Cape Province, Ciskei, and Transkei. It being desirable that an experienced officer should undertake these duties, it was arranged that Dr. E. H. Cluver should be seconded for the purpose—as from the 8th July, 1929.

CHART OF DEPARTMENT OF PUBLIC HEALTH as at 30th June, 1929.



2. *Council of Public Health.*—Under Section 4 of the Public Health Act, 1919, members of the Council are appointed for three-year periods. The third three-year period terminated on 30th June, 1928, from which date a new Council was appointed, comprising Mrs. S. B. Broers, Messrs. W. J. O'Brien, M.L.A., and L. C. Serrurier, and Drs. Charles Porter, Karl Bremer, M.L.A., H. J. Steyn, Sir Spencer Lister, with the Minister of Public Health as Chairman and the Chief Health Officer as Member and Deputy-Chairman *ex officio*.

The first meeting of the new Council was held at Pretoria on 28th and 29th November, 1928, all the members being present.

The following resolutions were passed:—

- (1) That this Council represent to the Government the urgent necessity for providing on the Estimates for next financial year for the addition to the staff of the Health Department of a small specialized staff for dealing with malaria.
- (2) That representations be made to the provincial school authorities urging that more time and attention be given to the teaching of health matters in schools, special consideration in this respect to be given to malaria and bilharzia in areas in which these diseases are prevalent.
- (3) This Council considers that the appointment of a lady Assistant Health Officer in the Department of Public Health is desirable and necessary.
- (4) This Council regards the medical inspection of school children as an essential and integral part of public health administration, and considers that, with a view to the organization of a more efficient system throughout the Union, steps should be taken to bring this service under the control of the Department of Public Health.
- (5) This Council desires to place on record its appreciation of the work being done by the Tuberculosis Research Committee through the South African Institute for Medical Research.
- (6) In view of the great economic loss to the country through enteric fever, this Council recommends that prophylactic immunization of all contacts of cases of enteric should be carried out by local authorities immediately on the discovery of a single case, and in this connection that attention should be called to the advantages in certain circumstances of the oral method of immunization.
- (7) The Council considers that in view of the great importance of the matter and the heavy and increasing mortality from cancer in the Union, facilities for the radium treatment of the disease should be provided at suitable centres. The Council endorses the resolution on the subject recently submitted to the Government by the Federal Council of the Medical Association of South Africa (B.M.A.), and recommends that in the event of the provincial administrations being unable to give effect to that resolution, this be done by the Government.
- (8) This Council, after careful consideration of the subject in all its bearings, considers that the period of cold storage for lightly infected measly meat required under the present regulations may be reduced to six weeks.
- (9) This Council endorses the resolution passed at its last meeting in regard to the importance of more publicity in public health matters.
- (10) This Council recommends to the favourable consideration of the Government the request of the Cape Municipal Association for the promotion of legislation providing that in the expropriation of slum or unhealthy areas by local authorities for improvement and housing purposes, the basis of compensation to owners be taken as the site value of the land on the lines of the Housing Act (England), 1925.

Amongst the other matters discussed were the following:—

- (a) Lack of medical, nursing, and midwifery services in rural areas; shortage of midwives generally.
- (b) International health matters: Paris International Sanitary Convention, 1926—arrangements for international notification of outbreaks; special measures at ports; fumigation of vessels; disinfection of second-hand clothing; measures in connection with aircraft arriving from overseas.
- (c) Co-ordination of health and medical work as between the Union Health Department and local authorities on the one hand and provincial administrations and hospital boards on the other; general policy regarding the hospitalization of cases of tuberculosis and infectious disease.
- (d) Plague; smallpox and vaccination; tuberculosis and Nelspoort Sanatorium; venereal disease; leprosy.
- (e) Medical examination of persons employed in dairies, butcheries, restaurants, etc.
- (f) Adulteration and misdescription of food, drugs, and disinfectants; need for early enactment of Bill now before Parliament.

3. *Legislation affecting Public Health.*—The Medical, Dental, and Pharmacy Act, No. 13 of 1928, and the Public Health (Amendment) Act, No. 15 of 1928, were brought into operation during the year.

The Food, Drugs, and Disinfectants Bill, which was reported on by a Select Committee of the House of Assembly during the 1928 Session, was taken up at that point during the First Session of 1929, passed through both Houses, and promulgated as Act No. 13 of 1929.

The following is a brief account of the history of this measure, its main objects, and the system and machinery of its administration and enforcement.

The need for comprehensive and up-to-date legislation in regard to the adulteration of food and drugs and cognate matters has long been recognized. At the time of Union and up to the passing of this Act, the matter was dealt with by old, obsolete, and inadequate provincial legislation—in the Cape Province by Act No. 5 of 1890, in Natal by Act No. 45 of 1901, in the Orange Free State by Ordinance No. 32 of 1906, and in the Transvaal by brief and practically useless enactments passed in 1896 and 1898, supplemented in the case of the municipalities by regulations on the subject made under Ordinance No. 9 of 1912. In the Cape and Orange Free State and in the rural areas of Natal the laws were administered by the Government; in the urban areas of the Transvaal and Natal by the local authorities. The whole arrangements were very inadequate and ineffective, and adulteration and misdescription, even of many articles of essential importance, were rife. Except in the case of milk and dairy produce in two of the Provinces, there were no powers in the old laws to lay down standards of composition or purity, and there were no effective powers for preventing false description or for securing the proper labelling of commodities. The Natal Act made no provision whatever in regard to the control of articles imported into the Province. If such articles were adulterated, no action could be taken against the importer; it was necessary to wait until the articles were sold, and then proceed against the vendor. The old laws contained so many loopholes, defects, and ambiguities that efficient enforcement was difficult and in regard to many matters impossible.

In 1915 the present Secretary for Public Health was instructed by the then Minister of the Interior to visit the four Provinces, discuss the matter with the authorities and officials concerned, and thereafter frame a consolidating and amending Bill dealing with the whole matter. This was done, and the first draft submitted to the Government in January, 1916. No further action was taken until 1923, when the draft Bill was printed and circulated to local authorities, chambers of commerce, and others concerned. After considering representations and suggestions made by these bodies, a revised draft of the Bill was prepared, but it was not until the Session of 1927 that the Bill was actually introduced to Parliament by the present Minister of Public Health, Dr. D. F. Malan. On that occasion it got no further than the First Reading, but during the Session of 1928 Dr. Malan re-introduced the Bill, which was read a Second Time and referred to and reported on by a Select Committee of the House of Assembly. The Minister took up the Bill at this stage during the First Session of 1929; it was passed through both Houses and promulgated as Act No. 13 of 1929.

The Act repeals all pre-existing laws regarding the adulteration of food and drugs in the Union; it provides for regulating the labelling and preventing the importation or sale of food and drugs which are unwholesome or adulterated, or incorrectly or falsely described, and for regulating the labelling and preventing the importation or sale of disinfectants which are incorrectly or falsely described.

The administration and enforcement of the Act are vested in the Minister of Public Health and the Health Department, but local authorities are required to assist and co-operate, and the Minister may, on the request of a local authority, delegate to such local authority the carrying-out and enforcement of the Act within its area in respect of particular articles or classes of articles—with provision for free analyses in Government laboratories of a yearly number of samples submitted by the local authority. The intention is to delegate accordingly to the larger local authorities which have adequate staffs and are willing to undertake the duties in the case of milk, dairy produce, and other perishable articles of local production and consumption, but that the Department shall administer the Act in respect of drugs, disinfectants, and manufactured articles generally. The carrying out of the Act within port areas will be dealt with entirely by the Government. Provision is made for the appointment of analysts, pathologists, and inspectors under the Act, and for the carrying out of examinations and analyses in the Government chemical and pathological laboratories.

The Act carefully defines what constitutes adulteration or misdescription—the latter term including any false or misleading statement on the label, or in any advertisement, regarding the nature or composition of the article, or its nutritive or curative properties.

The Act also contains detailed provisions in regard to the composition and labelling of flour, meal, bread, coffee, honey, milk, cream, and butter. Provision is also made for the proper labelling of disinfectants, including a statement of the active ingredients and the percentage of each, or the disinfectant efficacy of the article as compared with a standard prescribed by regulation.

Powers are taken to prohibit the importation of any food, drugs or disinfectants which are adulterated or falsely described, and for dealing with these at the ports of entry—the general policy of the Act being to enforce in respect of imported articles the same standards and requirements as apply in regard to articles produced or manufactured within the Union.

Provision is also made for the taking and analysis of samples and, in certain cases, for the inspection, seizure, and disposal of adulterated articles. Under a special section of the Act, the Minister is empowered to apply any or all of the provisions of the Act to ointment, cream, powder, or any similar substance for application to, or use for, the human skin or hair, or to soap, tobacco, cigars, cigarettes, snuff, chewing-gum, or any similar substance.

The Act also empowers the making of a comprehensive series of regulations regarding the laying down of standards, prohibiting the use of harmful substances or processes, prohibiting or regulating the use of colouring matters or preservatives in food, and the labelling of food, drugs, and disinfectants.

In the drafting and preparation of the Bill, and in its passage through Parliament, the chambers of commerce, the Federated Chamber of Industries, and the chief trade interests concerned have cordially co-operated and given valuable assistance. It was felt that a lengthy period of notice should be given before bringing the Act into operation, and it has therefore been decided that its date of commencement shall be 1st January, 1930. The Act itself provides that no regulation can be promulgated to be in force thereunder until three months after its publication in draft form, with a notice of the Minister's intention to make it and inviting criticisms of the draft. It was felt, however, that in regard to the first comprehensive set of regulations three months' notice was insufficient; arrangements have therefore been made for publishing the draft regulations early in July, 1929, so as to allow a period of practically six months before their coming into force, simultaneously with the Act, on 1st January, 1930.

4. *District Surgeons.*—New district surgeoncies were established during the year at Johannesburg (southern area) and Port Nolloth, and additional district surgeoncies at Naauwpoort, Nieuwoudtville, Vredenburg (Cape); Morgenzon, Ottosdal, Rooiberg (Transvaal); Hobhouse, Memel, Petrus Steyn, Steynsrust, and Viljoenskroon (O.F.S.). The following table shows the position at 30th June, 1929:—

TABLE B.—DISTRICT SURGEONCIES AS AT 30TH JUNE, 1929.

Province.	Whole-time.	Whole-time, but jointly with local authority or public body.	Part-time.		Total.
			On inclusive annual salary.	On annual salary with certain supplementary fees and allowances.	
Cape.....	3	3	5	137	148
Natal.....	3	—	—	39	42
Transvaal.....	2	—	11	50	63
Orange Free State.....	—	—	5	47	52
UNION.....	8	3	21	273	305

The eight whole-time officers are those at Capetown, Durban (3), East London, Port Elizabeth, and Pretoria (2); the three whole-time officers appointed jointly with local authorities or public bodies are those at Grahams-town, Queenstown, and Wynberg. Of the 21 officers on inclusive annual salary, 11 are detached additional district surgeons.

The post of District Surgeon, Port Nolloth, was established in conjunction with that of medical officer to the alluvial diamond diggings at Alexander Bay. Later it was decided to appoint a resident medical officer at the diggings and to revert to the system under which district surgeons' work at Port Nolloth is done by the District Surgeon, Namaqualand, who visits periodically and when required from Springbok.

During the year Dr. H. A. Lownds, District Surgeon, Komatipoort, Barberton District, contracted and died of malaria; Dr. D. M. Maciver, District Surgeon, Petrusville, Philipstown District, contracted plague whilst dealing with an outbreak and recovered, but with practically complete loss of vision in one eye; Dr. F. J. Hauptfleisch, District Surgeon, Parys, Vredefort District, also contracted plague whilst dealing with an outbreak and made a good recovery.

Periodical visits and tours, as provided for in Section 4 of Act No. 36 of 1927, have been authorized as follows:—

Zoutpansberg District.—Mara, Spitzkop, Zending, Nimmersault School, Vivo, Carlow, Krikwal, Alldays, Palmerston, Grootdraai, Vetfontein, Waterpoort, and Fenton—by District Surgeon, Louis Trichardt; Nous, Grey, and Martha—by District Surgeon, Messina.

Middelburg District (Transvaal).—Arabia, *via* Zoetvelden, Korenkoppies, Vogelstruiskoppies, and Buffelsfontein—by District Surgeon, Sekukuniland. (Cancelled on 23rd April, 1929, owing to insufficient attendance.)

Pietersburg District.—Zoetdoorns—by District Surgeon, Pietersburg. (Cancelled on 24th September, 1928, owing to insufficient attendance.)

Potgietersrust District.—Koedoesrand Ward.

Rustenburg District.—Hoopdal, Ganskuil, Dwaalboom, Northam, Kwaggasvlei, Kwikstaart, and Maroelasfontein.

Waterberg District.—Zoutpan Ward and Vaalwater—by District Surgeon, Nylstroom.

Kuruman District.—Blikfontein, Lower Dikgatlen, Kamden, and Van Zyls Rust—by District Surgeon, Kuruman; Barton, Dingle, and Deben—by District Surgeon, Olifantshoek.

Namaqualand District.—Soebatsfontein and Komaggas—by District Surgeon, Garies.

Tulbagh District.—Saron. (Cancelled on 25th January, 1929, as Railway Medical Officer pays weekly visits to Saron.)

5. *Local Authorities and their Health Staffs*.—Table C shows the numbers of the various classes of local authorities under the Public Health Act as at 30th June, 1929. Nine local authorities, namely, the Bloemfontein, Capetown, Durban, East London, Johannesburg, Pietermaritzburg, Port Elizabeth, and Pretoria Municipalities, and the Divisional Council of the Cape, have whole-time medical officers of health. The Kimberley Board of Health, jointly with the Kimberley Municipality, has a medical officer who devotes some of his time to laboratory work at the Kimberley Hospital, but does no private practice. At Grahamstown and Queenstown there are officers who act as health officers to the municipal and divisional councils and carry out the duties of district surgeons, but do no other medical work. There are several other areas to which this system might usefully be extended; the local authorities of Paarl and Stellenbosch are considering recommendations made by the Department in this direction.

On the 30th June, 1929, there were 69 local authorities, namely, 30 in the Cape, 10 in Natal, 9 in the Orange Free State, and 20 in the Transvaal, employing certificated sanitary inspectors devoting the whole of their time to sanitary work. This is an increase of six as compared with the previous year's figures.

TABLE C.—LOCAL AUTHORITIES UNDER THE PUBLIC HEALTH ACT (1919)
AS AT 30TH JUNE, 1929.

Province.	Municipalities.	Village Management Boards.	Local Boards.	Village Councils.	Health Committees.	Local Administration & Health Boards.	Magistrates.	Divisional Councils.	Board of Health.	Mining Commissioners.	Total.
Cape.....	128	82	14	—	—	—	29	90	1	1	345
Natal.....	9	—	16	—	—	10	42	—	—	—	77
Transvaal.....	24	—	—	32	30	—	36	—	—	2	124
Orange Free State	61	6	—	—	—	—	33	—	—	1	101
UNION.....	222	88	30	32	30	10	140	90	1	4	647

IV.—WORK OF THE DEPARTMENT.

1. *Inspections, Investigations, and Field Work.*—The following is a summary of these activities of the medical officers of the Department during the year:—

TABLE D.—FIELD INSPECTIONS AND INVESTIGATIONS BY MEDICAL OFFICERS OF THE DEPARTMENT OF PUBLIC HEALTH DURING THE YEAR ENDED 30TH JUNE, 1929.

Particulars.	J. A. Mitchell.	Sir E. N. Thornton.	F. C. Willmot.	G. A. Park Ross.	W. A. Murray.	E. H. Cluver.	A. J. van der Spuy.	G. D. Laing.	W. F. Rhodes.	D. H. S. Annecke.	J. D. Wicht.	Total.
Systematic General Inspections of Local Authority Area.....	6	—	8	4	12	8	—	14	—	1	—	53
Mines.....	—	—	—	—	—	58*	—	3	—	—	—	61
Factories and Works (including “Offensive Trade” premises).....	3	—	—	47	—	1	—	1	—	4	—	56
General and Chronic Sick Hospitals under Provincial Administration..	2	7	2	3	—	—	—	—	—	—	—	47
Mental Hospitals and Other Institutions under Department of Interior	—	—	—	3	—	1	—	—	—	—	—	4
Leper Institutions, Venereal Diseases Hospitals, Tuberculosis Sanatoria, etc.....	20	—	4	3	1	8	—	—	—	—	—	36
Prisons, Reformatories and other Institutions.....	—	—	—	5	—	1	—	—	—	—	—	6
Schools and Orphanages.....	—	—	—	6	—	—	—	—	—	—	—	7
Nursing and Maternity Homes and Private Hospitals.....	—	—	—	5	8	2	6	—	—	1	—	27
Water Supplies.....	1	1	1	5	2	4	—	1	—	—	—	16
Drainage and Sewerage.....	—	1	2	9	2	2	—	—	—	—	—	16
Housing (including Industrial Housing) and Overcrowding, Nuisances and Insanitary Conditions.....	2	1	—	41	—	2	—	—	1	—	—	47
Departmental Enquiries under Public Health or other Act.....	—	—	—	—	—	—	1	—	—	—	—	1
Formidable Epidemic Diseases: Plague, Smallpox, Typhus, etc.	—	1	1	1	—	7	—	11	—	—	—	21
Other Communicable Diseases.....	5	—	5	14	2	5	2	—	4	5	2	44
Other Inspections, Investigations and Field Work.....	6	28	11	31	17	15	4	25	—	1	—	138
TOTAL.....	45	39	34	177	44	114	46	55	5	19	2	580
Distances Travelled (approximate) in connection with Inspections, Investigations, etc.—												
Rail.....	10,401	4,000	4,900	1,700	6,060	8,201	10,105	5,110	800	408	—	51,685
Road.....	1,165	1,400	3,300	8,898	2,000	3,649	673	3,900	208	667	48	25,908
TOTAL.....	11,566	5,400	8,200	10,598	8,060	11,850	10,778	9,010	1,008	1,075	48	77,593
Days Absent from Office in connection with Inspections, Investigations, etc.	78	24	49	140	115	134	73	123	9	20	1	766

* Includes 27 compounds, 2 locations, 17 hospitals, 10 dressing stations, 2 underground inspections.

2. *Addresses, Published Papers, and Special Investigations by Members of the Staff:—*

Dr. J. ALEXANDER MITCHELL, *Secretary for Public Health and Chief Health Officer for the Union—*

“The Health Official and the Public Health.” Address, Health Congress, Durban, 2nd July, 1928.

“The Dentist and Dental Health.” Address, Transvaal Dental Congress, Pretoria, 22nd July, 1928.

“Food and Health and the Prevention of Adulteration.” Address, Goodwill Club, Johannesburg, 13th August, 1928.

“The Growth and Health of the People.” Address, Cape Divisional Councils Congress, Worcester, 21st September, 1928.

“A Tunnel Rat-trap for Stores and Ships.” Paper submitted to Office International d’Hygiene Publique, Paris, January, 1929.

“Health, Growth, and Welfare of the Native Peoples.” Address, European-Bantu Conference, Capetown, 7th February, 1929. (*S.A. Nursing Record*, May, 1929.)

“Epizootic among Veld Rodents in De Aar and Neighbouring Districts of the Northern Cape Province.” Report to Office International d’Hygiene Publique, Paris, April, 1929. (With Bacteriological Reports by Drs. J. H. Harvey Pirie and W. F. Rhodes.)

“The Medical Needs of the People and the Present System of Meeting Them.” Address, South African Medical Congress, Port Elizabeth, 15th May, 1929. (Supplement to the *British Medical Journal*, 21st September, 1929.)

“The State and the Public Health.” Address, Rotary Club, Port Elizabeth, 16th May, 1929.

Dr. W. A. MURRAY, *Assistant Health Officer—*

“The Sanitation of the Environment.” Address, Transvaal Municipal Congress. Potchefstroom, 4th October, 1928.

Dr. E. H. CLUVER, *Assistant Health Officer—*

“The Progress and Present Status of Industrial Hygiene in the Union of South Africa.” (*Journal of Industrial Hygiene, United States of America*, Vol. XI, No. 6.)

“Silicosis on the Witwatersrand Gold Mines.” (*British Medical Journal*, 29th September, 1928.)

“Hookworm among Rand Miners.” (*British Medical Journal*, 8th December, 1928.)

“Plague Preventive Measures.” Addresses at Paarl and Malmesbury at request of Education Department and Municipality on 23rd July and 4th September, 1928.

“Oral Immunisation against Typhoid in South Africa.” (*Lancet*, 22nd June, 1929.)

“Pellagra in South Africa.”

Dr. W. F. RHODES, *Government Pathologist—*

“‘De Aar Disease’; Preliminary Report of Laboratory Investigations.”

Dr. D. H. S. ANNECKE, *Government Pathologist—*

“Pellagra in Natal.”

Dr. J. J. DU PRÉ LE ROUX, *Assistant Medical Officer, Pretoria Leper Institution—*

“Leprosy: Its Symptomatology and Differential Diagnosis.” (*Journal of the Medical Association of South Africa*, 22nd June, 1929.)

Dr. G. D. ENGLISH, *Assistant District Surgeon, Durban—*

“Pellagra in the Durban Prison Command during 1928.”

W. POWELL, *Chief Rodent Inspector—*

“The Town Rat Problem.” (Submitted in competition for medal presented by Mayor of Capetown for best paper on a public health subject by a member of the Health Officials’ Association.)

“Differences between Plague and ‘De Aar Disease’ in Veld Rodents.”

3. *Health Publicity and Educative Work*.—The following pamphlets and leaflets have been prepared, published, and distributed by the Department to date. Pamphlets or leaflets of which revised editions have been published are omitted from the list:—

- “Senecio Disease.” (Warning notice.) No. 166 (Health).
- “Food and Health.” No. 194 (Health).
- “Directions for the Prevention and Treatment of Malaria.” No. 198 (Health).
- “Typhus or Louse Fever.” No. 217 (Health).
- “Anthrax.” No. 239 (Health).
- “Venereal Diseases: Their Prevention and Treatment.” No. 248 (Health).
- “Instructions to Persons suffering from Gonorrhœa.” No. 249 (Health).
- “Instructions to Persons suffering from Syphilis.” No. 250 (Health).
- “Poisoning by ‘Stinkblaar’ or Thorn Apple (*Datura stramonium* and *Datura tatula*).” (Warning notice.) No. 256 (Health).
- “Typhus or Louse Fever.” (Supplementary memorandum.) No. 258 (Health).
- “Sleeping Sickness.” (Warning notice.) No. 262 (Health).
- “Smallpox: Duties and Powers of Local Authorities under Public Health Act, and procedure to be followed in dealing with outbreaks.” No. 276 (Health).
- “Directions for the Performance of Public Vaccination.” No. 279 (Health).
- “How to Prevent Consumption.” No. 284 (Health).
- “Directions for Consumptive Persons.” No. 285 (Health).
- “Dagga Smoking and its Evils.” No. 289 (Health).
- “Plague: A Brief Account of its Symptoms, Clinical Diagnosis, Morbid Anatomy, and Treatment.” (Drs. D. C. Rees and J. A. Mitchell.) No. 293 (Health).
- “Measures against Plague.” No. 306 (Health).
- “Plague: Its Control, Eradication, and Prevention.” No. 316 (Health).
- “Plague and its Cause and Prevention.” No. 317 (Health).
- “Rodents: Description, Habits, and Methods of Destruction.” (W. Powell.) No. 321 (Health).
- “Fly-proof Latrines for Coloured Persons.” (Dr. G. A. Park Ross.) No. 334 (Health).
- “Houseflies: Their Life-history, Destruction, and Prevention, and their influence on Sanitation and Health.” No. 335 (Health).
- “Bilharzia (Human Redwater) Disease.” No. 339 (Health).
- “Snake-bite and its Treatment.” No. 348 (Health).
- “Tuberculosis: Summary of Causes and Preventive Measures.” No. 352 (Health).
- “First Measures in Malarial Prevention for Farmers and Settlers,” together with illustrated wall-poster; “Danger of Mosquitoes.” (Drs. G. G. Hay and G. A. Park Ross.) Published jointly with the South African Red Cross Society (Transvaal). No. 356 (Health).
- “Instructions to Native Patients suffering from Syphilis or Gonorrhœa.” (In Zulu, Sixosa, Sesuto, and Sechuana.) No. 358 (Health).
- “Malaria Catechism.” No. 360 (Health).
- “Influenza.” No. 363 (Health).
- “Typhoid or Enteric Fever: Its Causes, Spread, and Prevention in South Africa.” No. 365 (Health).
- “Care of the Teeth and Prevention of Dental Disease in Children.” No. 368 (Health).
- “Leprosy in the Transkei.” No. 372 (Health).
- “Catechism about Typhoid or Enteric Fever.” No. 378 (Health).
- “The Teeth: How to Prevent Decay.” No. 379 (Health).
- “Plague Danger in Cape and South-western Districts: Measures and Procedure in Event of Outbreak.” No. 380 (Health).

A pamphlet on Goitre and its prevention is in course of preparation.

A grant of £50 to the Swiss Mission was made from departmental funds towards the cost of translating and publishing in Sesutu a booklet on elementary hygiene by Rev. A. Jacques, which was published in Shangaan and Thonga in 1926.

A similar grant was made towards the cost of translating and publishing in Xosa a booklet entitled “Our Bodies and How they Work,” by Dr. Elsie Chubb.

The following cinema films have been purchased by the Department and are available to local authorities and public bodies for exhibition purposes:—

- “Whatsoever a Man Soweth” (venereal disease).
- “The Enemy within our Gates” (rats).
- “The Rat Menace.”
- “Swat that Fly.”
- “Fly Danger.”
- “Your Mouth.”
- “The Story of John McNeil” (tuberculosis).
- “The War on the Mosquito.”
- “How to Live Long and Well.”

4. Laboratories and Medical Research.

TABLE E.—PATHOLOGICAL LABORATORIES: ANALYSES AND EXAMINATIONS,
YEAR ENDED 30TH JUNE, 1929.

Particulars.	Laboratories.		South African Institute for Medical Research.
	Capetown.	Durban.	
<i>Specimens Examined for—</i>			
Government Departments—			
Agriculture.....	8	16	—
Customs and Excise.....	2	—	8
Defence.....	213	61	2,157
Interior (Mental Hospitals, etc.).....	497	266	241
Justice.....	—	259	1,404
Justice (Prisons).....	333	511	477
Mines and Industries (Miners' Phthisis).....	—	—	24,983
Posts and Telegraphs.....	53	—	—
Public Health (including Leper Institutions)	6,259	3,275	23,995
Public Works.....	—	4	—
South African Railways and Harbours.....	261	133	—
Other Government Work.....	22	—	531
General Hospitals (Provincial).....	777	12,374*	22,851
Local Authorities.....	11,002	3,340	3,419
Medical Practitioners.....	8,340	7,742	10,294
Members of the Public.....	—	8	—
Department of Education (Provincial).....	—	712	—
Other Governments or Administrations.....	—	—	35
Others.....	373	4	855
TOTAL.....	28,140	28,705	91,250
<i>Manufactures and Issues—</i>			
Autogenous Vaccines.....bottles	68	47	1,769
Bacterial Vaccines (stock).....c.c.	2,000	—	877,913
Tuberculin Dilutions.....c.c.	—	—	185
Sera (various).....c.c.	—	—	309,506
Anti-rabic Vaccine.....c.c.	7,200	—	—
Bulgarian Milk Cultures.....bottles	—	—	349
Insulin.....tubes	—	—	2,470
Smallpox Vaccine—Calf Lymph (prepared at Vaccine Institute, Rosebank).....tubes	1,360,000	—	—
Attendances at Courts of Justice by Members of Staff.....	—	28	6
Total Days' Absence entailed by such attendances	—	29	38

* A large proportion of this work was in connection with the Addington Hospital, Durban, and is done in conjunction with Dr. F. R. Johnstone, bacteriologist to the hospital.

Attention was called in previous Annual Reports to the very unsuitable and inadequate office and laboratory accommodation available to the Department at Capetown and Durban. During the past year this state of matters has been remedied. At Capetown a spacious and well-constructed building at the corner of Orange Street and Government Avenue, formerly the Anatomy and Physiology Block of the Capetown University, has been purchased by the Government and suitably altered internally. At Durban a new laboratory and office block has been constructed on the site of the old laboratory buildings off Currie Road, Berea. At both these centres the needs of the Department are now admirably met.

The scheme referred to in last Annual Report for the establishment by the South African Institute for Medical Research, Johannesburg, of a branch laboratory at Port Elizabeth—on a site adjoining the Hospital, granted by the Hospital Board—is being proceeded with. The Port Elizabeth Municipality and other local authorities of the area, and the local Hospital Board, have undertaken to contribute £2,000 per annum. Laboratory work from this area in connection with venereal diseases, tuberculosis, and other communicable diseases, which the Government undertakes free of charge to medical practitioners and local authorities, has hitherto been done in the Government Pathological Laboratory, Capetown, but the Department has agreed that in future such work may be sent to the new laboratory, and that it will be paid for by Government at the same rates as those paid by Government for similar work in the South African Institute for Medical Research, Johannesburg. The balance of the cost of maintenance, together with the initial cost of the building and equipment amounting to some £9,000, will be borne by the Institute. The establishment of this laboratory will greatly expedite and facilitate the carrying out of public health, medical, and medico-legal laboratory work, not only for Port Elizabeth and neighbourhood, but for the whole of the Cape Midlands and Eastern Province.

(2) *Medical Research.*—(a) *Tuberculosis.*—The comprehensive scheme of investigation of this disease referred to in the last two Annual Reports, administered and directed by the South African Institute for Medical Research on behalf of, and on general lines laid down by, the Joint Tuberculosis Research Committee representing the Government, the Native Deferred Pay Fund Board, and the Chamber of Mines, was continued during the year. Dr. Peter Allan, seconded from the Nelspoort Sanatorium, was continuously employed on field investigations during the year, and a second short visit to the Union in connection with the scheme was paid by Professor Lyle Cummins. Provision has been made for continuing the investigations up to the end of March, 1930.

(b) *Sunlight Survey of South Africa: Estimation of Ultra-violet Light.*—After consultation with Dr. Leonard Hill, Professor Schuster, of the English Medical Research Council, and other authorities in Europe, it was decided to organize and carry out systematic observations over a period of a year or so at selected centres throughout the Union, with a view to determining the actinic values of sunlight as compared with those obtained by similar methods in other countries. The acetone methylene blue method devised by Dr. Leonard Hill was selected for the purpose. It was found that Professor A. Stammers, of the Department of Physiology, University of the Witwatersrand, and his assistant, Mr. W. B. Osborn, M.Sc., were specially interested in the same question, and it was therefore decided to organize a scheme of investigation jointly, to be under the special control and direction of Mr. Osborn. Observations were arranged for at Johannesburg, West Fort (Pretoria), Belfast (Transvaal), Kimberley, Capetown, Robben Island, Oudtshoorn, Durban, Seven Oaks (Natal), and Maseru, and were commenced in January, 1929. The observations are being continued. A detailed report of the investigations will be published in due course; meanwhile it may be mentioned that the values so far obtained, especially at the higher altitudes, are surprisingly high.

(c) *Poor White Research.*—Early in 1928 the Carnegie Corporation of New York made available a sum of £2,000 annually for two years for the purpose of financing a comprehensive research into the causation of European indigency in South Africa. It was suggested that this research be carried out under the guidance of a special committee nominated jointly by the Research Grant Board of the Union and the authorities of the Dutch Reformed Church.

The President and Secretary of the Carnegie Corporation, who visited South Africa during 1927, remarked in a report submitted by them to the Corporation, that there are now more than 120,000 of the small total of the European population of the Union who have sunk below the economic level of the more advanced natives and who present a problem of the utmost gravity, which neither sociology, nor economics, nor public health, nor psychology and education can deal with alone, though valuable results might be obtained if these aspects of the problem could be dealt with jointly.

A representative committee under the chairmanship of Senator F. S. Malan, and which included the Secretary for Public Health, was thereupon constituted by the Research Grant Board and the Dutch Reformed Church authorities, proposals were formulated as to lines of research, plans of work and organization, and the following research personnel appointed:—Research worker on the economic aspect, Dr. J. F. W. Grosskopf; education, Dr. E. G. Malherbe; psychology, Dr. R. W. Wilcocks; sociology, Rev. J. R. Albertyn; health, Dr. W. A. Murray, of the Union Health Department.

While the salaries and expenses of the other research workers are provided out of the Carnegie Corporation funds, those of the representative of the Health Department are paid by the Government during the periods spent on the research. The South African Railway Department has granted free railway facilities to the research workers.

Since February these research workers have visited, either jointly or singly, many important centres in the Union (including Port Elizabeth and other southern Cape districts and the southern Karroo) where “poor whites” are known to form a substantial portion of the population, in order to study the economic, health, social, and other conditions which may have caused or contributed to their poverty.

These investigations are to be continued during the remainder of the present calendar year and possibly longer, but the Research Committee is expected to report to the Carnegie Corporation by the end of 1930.

5. *Port Health Administration*.—The following table summarizes health work at the ports of the Union during the year:—

TABLE F.—PORTS OF THE UNION: HEALTH MEASURES DURING THE YEAR ENDED 30TH JUNE, 1929.

Particulars.	Capetown.	Durban.	Port Elizabeth.	East London.	Mossel Bay.	Knysna.	Port St. Johns.	Simonstown.	Port Nolloth.	Total.
Vessels dealt with.....	977	1,374	965	698	189	25	29	59	104	4,420
Cases of infectious or communicable diseases dealt with.....	133	202	6	4	1	—	1	—	—	347
Vessels involved.....	88	87	1	3	1	—	1	—	—	181
Disinfections—										
Vessels.....	19	17	1	2	—	—	—	—	—	39
Second-hand clothing and other articles.....	170	1,162*	3,386	—	—	—	—	—	—	4,718
Bales of mixed articles.....	17	24	15	—	—	—	—	—	—	56
Rats Destroyed on Vessels and on Shore.....	3,925	2,148	3,664	801	3	—	—	—	—	10,541

* In addition, the personal effects of 1,627 Indian and Coloured passengers were disinfected.

The system of inspection and supervision of foodstuffs landed at the ports resulted in the condemnation of the following articles during the year: 623 bags of butter beans, 125 cases of salmon, 131 lb. anchovies, 72 tins of herrings, 40 cases of dates, 33 bags of wheat, 26 cases of condensed milk, 23 (7 lb.) tins of Indian butter, 15 bags of figs, 13 crates of potatoes, 12 pockets of sugar, 20 cases of preserves, 9 cases and 2 bags of sweets, 7 cases of vegetables, 7 cases of mutton, 6 cases of cheese, 5 cases of cakes and puddings, 4 tins and 3 bags of coffee, and small quantities of fish, currants, raisins, spaghetti, rice, meal, peanuts, and poultry food.

Influenza.—During the early part of 1929 there was considerable prevalence of epidemic influenza in many places in Europe and America, and the following vessels arrived at Union ports with cases of the disease on board, or having had cases during the voyage:—

- “ Guildford Castle ” arrived Capetown, 2.2.1929, from Southampton: Seven cases during voyage; six recovered; one convalescent on arrival.
- “ Carnarvon Castle ” arrived Capetown, 4.2.1929, from Southampton: 20 cases during voyage; 16 recovered; 4 recovering on arrival.
- “ Clan MacTavish ” arrived Durban, 9.2.1929, from Liverpool: 3 cases during voyage; 2 recovered; 1 convalescent on arrival.
- “ Edinburgh Castle ” arrived Capetown, 11.2.1929, from Southampton: 49 cases during voyage; all except 1 recovered on arrival.
- “ Chepstow Castle ” arrived Durban, 15.3.1929, from Mauritius: All the ship’s company, including 27 passengers, had “ colds ” during the voyage; 3 members of the crew and 4 passengers still sick on arrival.
- “ Llanstephan Castle ” arrived Durban, 15.3.1929, from East Coast ports: 4 cases of influenza on board on arrival.
- “ Llandovery Castle ” arrived Capetown, 20.3.1929, from Southampton: 15 cases of influenza during the voyage; 3 still ill on arrival.

In every case where there was any reason to suspect the persistence of influenza infection on board, the vessel was dealt with in “ restricted pratique ” until any possible source of infection had been removed and disinfection carried out. Cases and close contacts were landed and isolated on shore until free from infection—other possible contacts being allowed to land and proceed to their destination, the local authority thereat being notified of the facts. No spread of infection occurred from any of these vessels.

Smallpox.—Special measures in regard to smallpox infection were required in connection with the following vessels:—

- “ Ballarat ” arrived Capetown, 8.11.1928, from England: One case in a passenger. Patient and close contacts landed and isolated. Other passengers and the crew vaccinated or revaccinated, and disinfection carried out.
- “ Karapara ” arrived Durban, 1.5.1929, from Bombay, having landed one case an Indian passenger at Mombasa on 19.4.1929. All passengers and crew medically examined and vaccinated; Indian deck passengers detained at Salisbury Island Quarantine Station until it was clear that they were free from infection.
- “ Karagola ” arrived Durban 29.5.1929, from Bombay, *via* East Coast ports, having landed an Indian deck passenger with smallpox at Zanzibar on 17.5.1929. Precautions similar to those taken in the case of “ Karapara ” were adopted.

Typhus.—A case of typhus occurred at Durban on 6.11.1928 in a Lascar member of the crew of the s.s. “ Bellfield ” from Baltic ports. This vessel had arrived at Durban on 25.10.1928, and it is possible that the infection was contracted locally. The patient was isolated in hospital, suitable precautions were taken, and no further cases occurred.

Measles.—Outbreaks of measles had to be dealt with on several vessels carrying emigrants from Japan to South America.

Anti-rodent Measures.—Measures against rats at the ports, and on arriving vessels, have been actively continued. Wharves, sheds, and other structures at Capetown and Durban are now fairly satisfactory as regards the elimination of harbourage for rodents, but much still remains to be done in this direction at Port Elizabeth and East London.

International Sanitary Convention.—As required by the Paris International Sanitary Convention of 1926, a comprehensive report dealing with the general system of port health administration, and the staff and facilities at each port, was furnished on 7th November, 1928, to the Office International d'Hygiene Publique at Paris, which is the authority charged with the general administration of the Convention.

Fumigation of Vessels.—Under the above-mentioned Convention, all vessels, including coasters, must be efficiently fumigated every six months, or obtain from a port health authority recognized for the purpose by the Office International d'Hygiene Publique a certificate that such fumigation is not necessary. It has been arranged that the "terminal" ports of Capetown and Durban should be properly equipped for such fumigations, and that the port health officers thereat be recognized as competent to grant certificates of "deratization" or "exemption from deratization" under the Convention. Each of these ports has a "Clayton" sulphur fumigating apparatus mounted on a pont or barge. In recent years, however, the advantages of cyanide or prussic acid as a fumigant for vessels have become recognised to an increasing extent. The African Explosives and Industries, Ltd., has, at Durban, an expert staff and the latest apparatus for fumigation by this method, and the Department has entered into a contract with this firm for the fumigation of vessels when required—the costs entailed being borne by the vessels concerned. Facilities for ordinary fumigations and disinfections, also for inspections and anti-rodent measures on board of vessels, and for the hospitalization of cases of infectious disease, exist at the intermediate ports of Port Elizabeth and East London.

6. *Health Supervision of Aircraft.*—During the year the Department, in consultation with the Civil Air Board, framed regulations for the health inspection of aircraft entering or leaving the Union, and the medical examination and supervision of their crews and passengers; these were in course of promulgation at the end of the year. The object aimed at is to safeguard against the introduction of disease infections into the Union, without entailing any undue inconvenience, delay, or expense to aircraft owners or passengers.

The development of air transport introduces a new and potent factor into the field of epidemiology. South Africa is in a peculiar position in this respect, being within a few days' flight of localities where formidable epidemic diseases are always present. Yellow fever is endemic along the tropical west coast of Africa, and has occurred as far south as Loanda. The insect-carrier of this disease, the *Stegomyia* mosquito, occurs over most of the warmer parts of the Union. If the infection of yellow fever were introduced, under favourable seasonal conditions it is quite possible that spread might occur. In the old slave days the infection was carried from the west coast of Africa to places on the Atlantic coast of Central America. Later it was carried across the isthmus to the Pacific coast, and up to recently was a serious scourge on both the Atlantic and Pacific coasts of the tropical and neighbouring parts of the American Continent. The carrier-insect is very susceptible to cold, and lengthy cold journeys, either by land or sea, are fatal to it. Hitherto the infection has never been conveyed across the African Continent to the Indian Ocean, but as the special insect-carrier is common on the east coast of Africa and many parts of tropical Asia and the Far East, if the infection were so conveyed a catastrophic epidemic might result and leave behind endemic conditions which might quite conceivably alter the world's history.

Another disease to be guarded against is malaria of a malignant or virulent type. Malaria-carrying mosquitoes exist over a considerable area of the Union, and the introduction of virulent strains of infection might entail very serious results.

A third disease of importance in this connection is sleeping sickness, which exists over parts of Northern Rhodesia and some parts of Southern Rhodesia within an easy day's flight of the Union. The carrier of this disease is the tsetse fly, found over a great part of Zululand, which, from a sleeping sickness point of view, is like a powder magazine waiting for a match.

The risks of conveyance of infected mosquitoes or flies by aircraft are not very serious; the great danger is that persons on a flight down the African Continent may be bitten by disease-carrying insects, arrive in the Union in the incubation stage of the disease, and later develop and spread it. It is impossible for medical science to detect such diseases in the incubation stage and before any symptoms occur; the only practical safeguard in such circumstances is a system of medical surveillance for a sufficient time after landing, such as is provided for in the Public Health Act, No. 36 of 1919.

7. *Adulteration of Food and Drugs.*—The following table shows the action taken in this connection during the year:—

TABLE G.—ADULTERATION OF FOOD AND DRUGS. YEAR ENDED
30TH JUNE, 1929.

Place.	Samples Taken.	Samples Analysed.	Samples Found Inferior, Deficient or Adulterated.	Prosecutions.	Convictions.	Remarks.
Ports of Union.....	68	67	3	—	—	Importers warned. A large percentage of offences, especially first offences, are dealt with by warning notices.
Cape Province.....	1,997	1,987	147	27	23	
Natal Province.....	72	72	7	7	7	Adulteration laws administered by Municipalities within their areas.
Transvaal Province....	972	972	102	—	—	
Orange Free State Province.....	13	13	1	1	1	
UNION.....	3,122	3,111	260	35	31	

In view of the passing of the Food, Drugs, and Disinfectants Act, No. 13 of 1929, no attempt has been made to do more than “carry on” under the old laws until the new Act comes into operation.

8. *Health of Natives on the Witwatersrand Gold Mines.*—A systematic resurvey of health conditions on the Witwatersrand gold mines was made during the year. The feeding, housing, and general treatment of the native labourers was found on the whole to be very satisfactory. But in individual compounds some very unsatisfactory features were encountered. In a few, the buildings in which the natives sleep were found dilapidated, structurally defective, and liable to harbour or actually harbouring vermin. Occasionally gross overcrowding was found occurring in these rooms. Some of the kitchens were found defective, and the supervision of the cooking inadequate. In particular the vegetables (which are required to be added to the ration to prevent the occurrence of scurvy and to raise the general resistance of the workers against disease) were sometimes found to be over-cooked, thereby greatly reducing their vitamin value, or prepared in such a way as to be unpalatable to the native, who then picks them out with his fingers and throws them away.

There was also evidence that in some mines the regulations regarding rations were being deliberately evaded or not properly carried out. Thus the anti-scorbutic ration of germinated beans was not found to be issued at all mines. Again, the regulations require that the bread issued shall consist of not less than 64 per cent. of wheaten flour or whole meal and not more than 36 per cent. of mealie meal. This regulation is difficult to enforce owing to the fact that the characteristics of starch grains are obscured or destroyed by baking, so that after baking determination of the precise proportions is difficult or impossible. But on many of the mines inspected the bread appeared on naked eye inspection and to the taste to be grossly inferior, and there was little doubt that it was composed largely of mealie meal. The diet of the native workers already errs on the side of too much mealie meal.

Typhoid fever is still prevalent to an excessive extent on some mines; for this, inadequate sanitary measures on the part both of the mine managements and the municipalities concerned are to blame.

Though, as mentioned above, the health conditions of native mine labourers on the mines of the Rand are on the whole satisfactory and well supervised, the above-mentioned defects on some of the mines call for definite action and improvement.

V.—INFECTIOUS, COMMUNICABLE, AND PREVENTABLE DISEASES.

1. *Notifications*.—The following table shows the notifications of infectious diseases by medical practitioners during the year, the totals for the previous year being inserted for comparison. It is to be noted that many cases of such diseases, especially in natives, are never seen by a medical man, and consequently are not notified:—

Disease.	Year Ended 30th June, 1928.		Year Ended 30th June, 1929.									
	Union.	Total.	Cape Province, excluding Transkei.		Transkei.		Natal.		Orange Free State.		Transvaal.	
			European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.
Anthrax.....	43		8	6	1	4	—	7	1	2	—	9
Diphtheria.....	1,616		453	180	9	6	210	30	104	61	344	22
Encephalitis, Infective.....	54		14	11	—	—	—	—	3	—	7	4
Enteric or Typhoid Fever.....	5,787		1,075	1,226	14	60	225	264	184	159	755	1,001
Erysipelas.....	303		89	42	1	—	12	3	14	2	59	50
Glanders.....	—		—	—	—	—	—	—	—	—	—	—
Leprosy.....	103		2	23	—	5	—	22	—	6	3	38
Malta Fever.....	10		—	5	—	—	1	—	—	—	—	—
Meningitis, Epidemic Cerebro-spinal.....	978		103	371	5	2	2	8	4	10	50	192
Ophthalmia, Gonorrhoeal.....	33		1	13	—	—	—	1	—	9	8	4
Ophthalmia Noenatorum.....	262		37	167	—	—	—	8	6	22	13	8
Plague (for complete list of cases and deaths, see Table L).....	12		1	1	—	—	—	—	3	2	—	—
Poliomyelitis, Acute.....	32		3	4	—	—	2	—	—	1	9	3
Puerperal Fever, including Puerperal Sepsis..	264		63	98	—	—	7	23	7	8	60	40
Rabies.....	—		—	—	—	—	—	—	2	1	1	1
Scarlatina or Scarlet Fever.....	3,183		580	25	3	1	120	6	158	4	2,092	7
Smallpox [for complete list of cases and deaths, see Table N (ii)].....	24		3	10	—	—	—	—	—	3	—	10
Trachoma.....	32		11	30	—	—	—	—	—	1	—	1
Tuberculosis.....	5,491		496	2,821	1	384	69	552	37	106	60	1,735
Typhus Fever (for complete list of cases and deaths, see Table P).....	941		44	310	—	711	16	33	3	19	—	10
TOTALS.....	19,168		2,983	5,343	34	1,173	664	957	526	416	3,461	3,135

2. *Ankylostomiasis (Hookworm Disease)*.—In October, 1928, on representations from the S.A. Mine Workers' Union as to the serious spread of hookworm disease amongst underground workers in the gold mines, and the grave effects on the health of the sufferers, the Minister for Mines and Industries appointed a Committee to investigate the matter. This Committee consisted of the Chief Inspector of Mines as Chairman and representatives of the Union Health Department, the Transvaal Chamber of Mines, the Underground Officials' Association, and the S.A. Mine Workers' Union. Later a representative of the Mine Managers' Association was added. The terms of reference of this Committee were:—

- (1) To inquire into and report upon the prevalence of Ankylostomiasis—commonly known as hookworm disease—amongst the employees of the Witwatersrand gold mines, and the adequacy or otherwise of existing measures for the prevention, limitation, and suppression of that disease and for the treatment of cases;
- (2) to inquire into and report as to the desirability of the disease being added to the Schedule of Industrial Diseases under the Workmen's Compensation (Industrial Diseases) Act, No. 13 of 1917; and
- (3) generally to make recommendations in connection with the above-mentioned matters and also as to any amendments of existing laws relating thereto which the Committee may consider desirable.

This Committee met frequently, obtained evidence from many sources, and reported early in 1929 their findings and recommendations to the Minister for Mines and Industries.

The main findings of the Committee were:—

- (1) Hookworm is not a danger to the major portion of the Union, as the climatic conditions are unfavourable to its existence;
- (2) it is introduced into the Reef gold mines chiefly by East Coast natives, 50 to 55 per cent. of whom come infected to the mines and form the main reservoir of infection there;
- (3) only 10 per cent. of 450 Union natives examined on arrival at the mines were found infected;
- (4) during the two years ended November, 1928, a total of 360 European underground miners were found infected, out of about 700 examined on account of suspicious physical symptoms;
- (5) infection is spread from infected natives to healthy whites or natives solely through a breakdown in the sanitary arrangements at the mines;
- (6) a person "infected" with hookworm does not necessarily suffer from hookworm "disease"; a considerable number of worms must be present before symptoms of the "disease" appear;
- (7) only a quarter to a third of the European cases showed definite signs (such as anaemia and weakness) of hookworm "disease";
- (8) hookworms do not multiply in the human body and their life is limited. Provided that there is no re-infection, the infected person will be cured by effluxion of time alone.

The main recommendations put forward by the Committee were:—

- (1) Increase in the number of permanent latrines and provision of portable latrines in the neighbourhood of working places;
- (2) lavish use of common salt to destroy the larvae of the parasite about latrines, etc., in the mines;
- (3) mass treatment of natives on arrival at the mines, provided that a practicable scheme for rapid diagnosis or of safe and effective treatment can be evolved;
- (4) as in the opinion of the Committee, hookworm disease can rightly be considered an occupational disease, it should be included in the Schedule of Industrial Diseases under the Workmen's Compensation Act, No. 13 of 1917, but the application of that Act should be limited to persons referred to in paragraphs (a), (b), (c), (d) of Section 1 (1) of the Mines and Works Amendment Act, No. 25 1926.

3. *Bilharziasis (Schistosomiasis)*.—The main feature of this year's campaign against this disease has been the establishment of a Transvaal Bilharzia Committee, by means of which the policy and activities of various bodies concerned are co-ordinated and organized. At the suggestion of this Department, a conference was held in September, 1928, between representatives of the Transvaal Education Department, the Transvaal Branch of the S.A. Red Cross Society, and the Union Health Department, at which it was agreed that these three bodies should co-operate, financially and otherwise, in educative and publicity work in connection with the disease, advising as to preventive and precautionary measures, and in organizing special "camps" for mass treatment of affected scholars from time to time at various suitable centres.

Arrangements were subsequently made to hold such a camp at Nylstroom during the ensuing summer vacation, under the charge of a school medical officer and nurse. At this camp 53 European scholars suffering from bilharzia were successfully treated by means of intravenous injections of sodium antimony tartrate, on the lines described in last year's Annual Report, but with some modifications suggested by experience. The initial dose was a quarter to half a grain only, and the average total amount of tartar emetic found necessary to treat each child successfully was $1\frac{1}{2}$ to 2 grains for every 10 lb. of body weight. Re-examination of 43 of these children three months later showed no recurrence of symptoms in 41 and definite persistence of symptoms in one, while one was doubtful.

During the treatment a public lecture was given at Nylstroom by a member of the Committee to press home the lessons of the "camp." A film dealing with the causation and mode of spread of the disease was shown and explained at the lecture. This film was prepared by the South African Institute for Medical Research for its own requirements, but arrangements have been made with the Institute to copy and adapt this film for general educative and publicity purposes.

The value of these camps for publicity and educative purposes—apart from the children actually treated and cured—has been fully established; the Committee has arranged for similar camps to be held during the winter vacation of 1929 at Nelspruit, White River, and Ohrigstad.

The existence and aims of this Committee have also been brought to the notice of all urban local authorities and magistrates in affected districts in the Province, and their active co-operation solicited. The great desirability of local and school authorities, farmers, and others concerned providing bilharzia-free swimming pools or baths has been strongly emphasized in order to guard against further local infection or re-infection of children and others.

Following an offer by the Johannesburg Joint Council of Europeans and Natives to co-operate with the Bilharzia Committee in any anti-bilharzial efforts amongst the non-European population, arrangements were made for members of the Committee to address native teachers on this subject at a native college and a conference, and also at a Pathfinders' camp. Literature on bilharzia was supplied to the Joint Council and distributed at these lectures.

4. *Diphtheria*.—Notifications of diphtheria for the present year amounted to 1,419, a decrease of 197 on the previous year's total. The four Provinces of the Union were equally involved in relation to the size of their populations.

During the year investigations into the number of children susceptible to diphtheria in Capetown were undertaken by Dr. Dowie Dunn under the auspices of the Capetown Municipality. The test for susceptibility to diphtheria (Schick test) was carried out on 1,833 persons, of whom 1,816 afterwards attended for inspection.

The results of these tests go to show that approximately 48 per cent. of the children tested had no natural protection against diphtheria infection. Subsequently some 400 of these susceptible children received protective inoculation and 100 of the persons so treated were subsequently re-tested and only 19 were found to be still susceptible. Four of these latter received further protective inoculation and were subjected to a second re-test for susceptibility when all were found to be insusceptible.

Although the numbers tested and subsequently immunized are too small to allow of dogmatic conclusions, they confirm the results of more extensive investigations carried out in Europe, America, and elsewhere and have certainly done a great deal to give publicity to the great advance which has been made in recent years in the control and prevention of diphtheria. A comprehensive scheme for the testing of children and subsequent immunization where necessary, has been drawn up by Dr. Shaddick Higgins, Medical Officer of Health to the Municipality of Capetown.

Statistics from Capetown and other centres show that about the total mortality from diphtheria occurs between the ages of one and five years. It has further been demonstrated that this age-group shows a higher proportion of susceptibles than any other, and it is therefore considered advisable to immunize, without previous Schick-testing, all children aged one to six years.

5. *Enteric or Typhoid Fever*.—There was a considerable decrease in the number of cases of typhoid or enteric fever notified during the year, the total amounting to 4,963, as compared with 5,787 for the previous year. Of the total notifications received, 26.5 per cent. were of this disease.

As usual, the incidence in the larger towns was low, but in several of the smaller urban centres it was very excessive. There can be no doubt that a very large proportion of the typhoid occurring in this country is fly-borne—as is shown by the nature of the outbreaks, which are seldom of the “explosive” type, in which a large number of people become affected at the same time, but are rather of the “continuous chain” variety, in which single cases or small groups of cases occur one after the other over a period. In the smaller towns the keeping of cattle and horses in the urbanized area and accumulation of manure is a potent cause of fly-breeding and thus indirectly of enteric. In the larger centres the progressive displacement of equines by motor vehicles and the use of tar and asphalt for road surfaces are having good effects in the opposite direction. Until people learn the value of cleanliness, not only of the person but also of backyards, stables, closets, etc., and above all the danger of the ubiquitous fly, there will always be an excessive incidence of enteric or typhoid fever.

A fairly large outbreak occurred at Salt River, Knysna District, comprising 34 cases (10 Europeans and 24 non-Europeans), with 4 deaths. The outbreak was investigated by an officer of the Department, and it was found that in almost every case infection had resulted from the drinking of water from the river, which had become infected. The necessary measures were taken to prevent the spread of the disease and the outbreak quickly subsided.

Another sharp and sudden outbreak occurred in the Berlin Forestry Settlement, Barberton District. The outbreak was investigated by an Assistant Health Officer and found to be due to specific contamination, by infected natives, of the catchment area of the settlement water supply. Immediate action was taken to prevent spread. The total population of the settlement was immunized by means of vaccine tablets given by the mouth, and most of the cases were removed to the Barberton Hospital. Steps were taken to cleanse the reservoir and to prevent further contamination of the water supply. Pipes were laid up to a point in the catchment area above all probable sources of contamination, and the catchment area itself was cleared. There were, in all, 107 cases (84 European and 23 native), with 11 deaths (7 European and 4 native).

The only other outbreak of any magnitude occurred at No. 2 Boys' Hostel, Ficksburg, O.F.S. There were 22 cases amongst European scholars, with 3 deaths. Infection was attributed to a native female who had been employed in the hostel kitchen two or three weeks before the outbreak occurred, and who had been ill some months previously with what was almost certainly enteric fever. Immunization and precautionary measures to prevent spread resulted in a cessation of cases. The native female left the hostel before investigations were completed and was employed by a private family; bacteriological examination of her blood and excretions then proved negative, so that beyond immunizing the members of the household no further action was deemed necessary.

The following table shows the notifications of enteric or typhoid fever in certain centres during the year, *beginning with those in which the incidence rate has been highest*:—

TABLE J.—ENTERIC OR TYPHOID FEVER: NOTIFICATIONS AND INCIDENCE IN CERTAIN LOCAL AUTHORITY AREAS DURING THE YEAR ENDED 30TH JUNE, 1929 (ARRANGED IN ORDER OF INCIDENCE RATE)—EXCLUDING CASES RETURNED AS “IMPORTED.”

Place.	Notifications.			Incidence per 1,000 of Population.		
	European.	Non-European.	Total.	European.	Non-European.	All Races.
Burghersdorp.....M.	7	120	127	3·68	70·46	35·25
Nigel.....V.C.	—	80	80	—	36·20	25·74
Calitzdorp.....M.	23	19	42	20·16	33·93	24·69
Jansenville.....M.	11	8	19	15·76	11·49	13·63
Wolseley.....V.M.B.	11	1	12	24·72	1·61	11·24
Dewetsdorp.....M.	6	12	18	5·67	16·39	10·05
Port Shepstone.....L.B.	4	8	12	7·74	10·70	9·49
Hopetown.....M.	14	—	14	16·45	—	9·18
Calvinia.....M.	2	18	20	1·93	13·89	8·57
Philippolis.....M.	10	—	10	11·85	—	7·41
Paarl.....M.	46	57	103	6·89	7·70	7·32
Uitenhage.....M.	72	29	101	8·87	4·53	6·96
Korsten.....V.M.B.	17	41	58	9·01	6·33	6·93
Ficksburg.....M.	23	2	25	9·56	1·51	6·70
Molteno.....M.	3	13	16	2·46	10·75	6·59
Knysna.....M.	6	6	12	4·52	9·93	6·21
Steytlerville.....M.	—	8	8	—	12·86	6·12
Riversdale.....M.	13	5	18	8·15	3·55	5·99
Oudtshoorn.....M.	41	17	58	7·26	3·29	5·36
George.....M.	15	15	30	3·97	7·98	5·30
Piquetberg.....M.	3	5	8	3·69	6·01	4·86
Barkly East.....M.	6	3	9	5·98	3·31	4·71
Cradock.....M.	11	21	32	3·23	5·95	4·61
Aliwal North.....M.	9	18	27	3·41	4·67	4·16
Malmesbury.....M.	9	8	17	3·82	4·37	4·06
Springs.....M.	7	68	75	1·31	4·56	3·70
Harrismith.....M.	9	14	23	3·38	3·80	3·63
Volksrust.....M.	10	2	12	4·21	1·82	3·46
Krugersdorp.....M.	14	58	72	1·24	5·33	3·25
Worcester.....M.	18	11	29	4·25	2·32	3·23
Germiston.....M.	55	80	135	3·32	3·00	3·12
Caledon.....M.	3	6	9	1·80	4·52	3·01
Brakpan.....M.	1	77	78	0·12	4·39	3·00
Goodwood.....V.M.B.	8	—	8	4·32	—	2·80
Malvern.....L.A. & H.B.	4	4	8	1·68	5·14	2·54
Rodepoort—Maraisburg..M.	8	52	60	1·11	3·07	2·48
Robertson.....M.	7	4	11	2·53	2·16	2·38
Graaff-Reinet.....M.	5	17	22	1·09	3·57	2·36
Ladybrand.....M.	6	3	9	2·65	1·86	2·32
Vryheid.....M.	8	3	11	2·81	1·53	2·29
Ermedo.....M.	7	2	9	2·93	1·09	2·13
Beaufort West.....M.	8	5	13	2·50	1·59	2·05
Kroonstad.....M.	13	7	20	2·62	1·39	2·00
Umhlatuzana..L.A. & H.B.	14	—	14	3·29	—	1·96
Somerset East.....M.	8	2	10	3·31	0·69	1·88
Middelburg, Tvl.....M.	8	1	9	3·08	0·43	1·82
Johannesburg.....M.	175	346	521	1·04	2·61	1·73
Innesdale.....V.C.	13	—	13	1·83	—	1·56
Ladysmith, Natal.....M.	5	6	11	1·41	1·68	1·55
Pretoria.....M.	55	44	99	1·30	1·74	1·46
Sydenham.....L.A. & H.B.	8	13	21	3·14	1·03	1·38
Stellenbosch.....M.	7	4	11	1·59	1·11	1·37
Bethlehem.....M.	3	6	9	0·75	2·01	1·29
*Capetown.....M.	160	148	308	1·29	1·29	1·29
Boksburg.....M.	23	22	45	1·89	0·86	1·19
Mayville.....L.A. & H.B.	10	5	15	4·20	0·47	1·15
*Port Elizabeth.....M.	35	19	54	1·19	0·88	1·06
*Bloemfontein.....M.	22	21	43	1·10	0·91	0·99
Benoni.....M.	5	39	44	0·34	1·76	0·92
Kingwilliamstown.....M.	5	4	9	0·78	1·07	0·89
Randfontein.....M.	3	14	17	0·92	0·77	0·79
Pietermaritzburg.....M.	21	5	26	1·09	0·28	0·71
Durban.....M.	47	17	64	0·88	0·35	0·63
Potchefstroom.....M.	7	2	9	0·75	0·39	0·62
Grahamstown.....M.	7	2	9	0·91	0·26	0·59
*East London.....M.	8	13	21	0·43	0·73	0·58
Kimberley.....B. of H.	5	4	9	0·31	0·19	0·24

M. = Municipality.

V.M.B. = Village Management Board.

V.C. = Village Council.

H.C. = Health Committee.

L.B. = Local Board.

L.A. & H.B. = Local Administration and Health Board.

B. of H. = Board of Health.

* Rates calculated on population as at census, May, 1926; others calculated on European population as at census, May, 1926, and non-European population as at census, May, 1921.

6. *Influenza*.—During the year no serious outbreak of influenza was reported from any part of the Union.

The existence of influenza in pandemic form over the greater part of Europe and North America towards the end of 1928 and during the first few months of 1929 led to some anxiety lest the infection should spread to this country.

Special precautions were promptly taken at Union ports. Detailed instructions were issued to all port health officers and special vigilance enjoined. During February and March, 1929, seven vessels arrived at Union ports with cases of influenza on board or on which cases had occurred during the voyage; particulars of these have already been given in this report under "Port Health Administration."

Steps were also taken to ensure that, should spread to the Union occur, the country would be prepared to meet it. All local authorities were circularized and furnished with copies of a pamphlet—363 (Health)—on influenza. The pamphlet dealt with the salient features of the disease and its modes of spread, and outlined the precautionary measures and organization for dealing with outbreaks recommended. It was intended primarily as a warning to local authorities and other health bodies and an indication as to what their responsibilities were should epidemic conditions arise. Arrangements were also made whereby ample supplies of pamphlets could be made available to local authorities for distribution to the general public at short notice.

7. *Leprosy*.—The subjoined tables summarize the measures taken under the leprosy laws of the Union during the year and the position at the end of the year. It will be seen that the number of European patients remaining in institutions at the end of the year was only 105. There has been a fairly steady fall in admissions of Europeans during recent years. The system of notification is now working more efficiently than formerly, and it is certain that few European cases remain unreported. There is every reason to hope that before many years the leprosy problem in the Union will be almost exclusively a non-European one.

As regards natives, the policy outlined in previous Annual Reports is being steadily followed, but there are still considerable numbers of unreported native cases in the Transkei and other predominantly native areas. Discovery and removal arrangements are, however, being improved, and the average interval between onset of symptoms and admission to a leper institution is being reduced. Owing to the large construction programme of the Public Works Department and other circumstances, progress with the construction of temporary isolation depots at selected points in the Transkei and Natal, referred to in last Annual Report, has been regrettably slow. This scheme is now, however, being actively proceeded with; its completion, and the organization of a motor ambulance service in connection therewith, will constitute a great forward step.

The possibilities of organizing a system of medical surveillance and periodical medical examination of "close contacts" of leprosy cases for some years after removal of the focus of infection, are being explored, but the difficulties are very great; apart from the heavy cost, any scheme of this kind would be apt to be resented by the natives and might easily put a stop to voluntary notifications and do more harm than good. It is hoped, however, to organize and carry out a partial and modified scheme of this kind at a cost which would not be prohibitive. An increasing proportion of admissions to the institutions in the Transkei are voluntary and with the patients still in the early stages of the disease. Recently there were eight voluntary admissions to Emjanyana from one district and four from another. Out of 24 admissions to the Mkambati institution since 1st January last, 10 were voluntary—including 5 out of the last 7 admissions. Arrangements have been made for a committee of five patients in a non-infective stage, selected by the inmates of the Emjanyana institution, to tour some of the Transkeian districts, in which it is believed there are still a good many unreported cases, and to hold meetings and advise the natives of the infectious nature of the disease and the advantages of treatment in an institution during its early stage. The general educative and publicity campaign, with the same objects, is being actively continued. As already mentioned, an Assistant Health Officer with special knowledge of leprosy will be stationed at Kingwilliamstown as from the beginning of July, 1929, and will devote much of his time and attention to leprosy in the Transkei and Ciskei.

At the Pretoria, Emjanyana, and Mkambati institutions, the great majority of the patients are on active anti-leprotic treatment, all modern methods being in use—with, on the whole, beneficial and encouraging results. At Robben Island, efforts to get the patients to accept and continue such treatment have been disappointing, owing to active discouragement by some of the older and more influential patients in whose cases treatment has been unsuccessful. At the Pretoria Leper Institution, owing to the shrinkage of

the number of European patients, it has been found possible to evacuate a well-constructed block and convert it into an examination room, with dressing-rooms, photographic room, and laboratory. A hospital ward for sick European inmates, and a steam laundry with modern equipment, are also being provided. At Amatikulu a new hospital block is being constructed, and steps are being taken to provide better facilities for nursing and medical treatment. The objections of the Zulu inmates to operations and injection methods of treatment are being gradually overcome.

A good deal of discontent and unrest, especially amongst the European and mixed coloured patients, but which may easily spread to the native patients and perhaps lead to regrettable results, has been occasioned by various publications in the English and South African press, emanating from or inspired by Sir Leonard Rogers, of the London Committee of the British Empire Leprosy Relief Association. Apart from so publishing claims concerning new "cures" of wonderful efficacy which he has introduced, with remarks such as "We Have Triumphed,"—which the newspapers, of course, print in block-letter headlines—claims which experience and careful test treatments here have so far failed to bear out, the remedies, moreover, being merely compounds or preparations of chaulmoogra or hydnocarpus oil, which have been in use in leper institutions in the Union and elsewhere for thirty or forty years past—Sir Leonard has directly and specifically attacked and condemned the Government of the Union for continuing the system of compulsory segregation, contending that it is obsolete and unwarranted, and that it should be abolished and replaced by a purely voluntary system with home segregation and leprosy clinics at which patients would be treated on outdoor lines. He insists, however, that "hygiene is imperative, that the leper should sleep alone, should not permit others to use the linen he wears, or to eat and drink from the same vessels as himself," these remarks being coupled with much emotional appeal and references to the injustice of "indiscriminate life sentences" on account of a disease which is only slightly infectious. It will readily be understood how publications of this kind affect the patients in our institutions, some of whom collect, through press-cutting agencies and otherwise, study with great and very natural interest, and pass on to the other patients every publication and reference to leprosy which they can get hold of.

Sir Leonard Rogers has never visited South Africa, and obviously has very vague or erroneous ideas regarding the policy of the Government and the leprosy position in this country; further, he has not had much personal experience of the leprosy problem in its administrative or clinical aspects, his rôle in connection with the disease being rather that of journalist and propagandist. There is no place in the Union where a leprosy clinic or dispensary could be located which would be within reasonable reach of the homes of a dozen lepers; on this ground alone his clinic suggestion is quite impracticable. A few years ago he was lauding, and holding up as a model to other countries having a leprosy problem, the liberal and enlightened system instituted by the Union Government of periodical examinations by a board of official and non-official experts of all segregated patients and the release on parole, and subject to periodical re-examination, of all cases where the Board considered the disease arrested and no longer infective. Since this system was instituted in 1923 a total of 1,581 leprosy patients have been so released. To-day he condemns the whole system, and states that "South Africa, in her sheer terror of leprosy, has made incarceration in a leper asylum a law for all lepers, no matter at what stage they are detected."

It is true that leprosy is not a highly infectious disease; that infection usually requires close and prolonged contact; that proper care and cleanliness and careful isolation as regards the persons, clothing and utensils, such as can be carried out in their own homes by cleanly and intelligent persons possessing the necessary accommodation and facilities, is ordinarily sufficient to prevent spread; also that the general European public of the Union has an excessive and unreasoning dread of the disease—except, curiously enough, when cases of the disease occur in their own families, when they usually refuse to believe that the disease is leprosy and act accordingly. The people of the Union are not exceptional in this respect. From time to time incidents occur showing that a similar attitude still persists in highly civilized European countries; a year or two ago, serious local discontent with threats of violence resulted from a leper (who had contracted the disease overseas) being allowed to reside and walk about in a certain village in the south of England.

Sir Leonard Rogers emphasizes that the compulsory segregation system discourages voluntary notification, and consequently is apt to delay discovery and appropriate treatment. This also is true up to a point, but in the Union to-day—as a result of the conditions obtaining in the leper institutions, the results of treatment and the system of release of patients in whom the disease is "arrested" and no longer infective—a considerable and increasing proportion of new admissions are voluntary—and in any case it is a choice between systems both of which have drawbacks. If compulsory segregation

were abolished to-morrow and the gates of our leper institutions thrown open, a large proportion of the inmates—European, mixed coloured, and native—would at once return to their homes. It would be quite impracticable, in this country of vast distances and sparse population, to provide either for their proper medical treatment or for ensuring the observance of the most elementary and essential precautions, and the inevitable result would be that the disease would again increase.

As regards home segregation, the fact is that all cleanly, intelligent, and reasonably reliable patients possessing the necessary accommodation and facilities are allowed to segregate themselves at home, should they so desire; 10 per cent. of European cases are so segregated at present. The Leprosy Board inquires into all such applications, and where it is satisfied that home segregation may be allowed without any appreciable danger to the public health, the application is granted. Such applications are, however, not numerous. Coloured persons and natives rarely possess the necessary facilities, or can be relied on to carry out essential precautions. The same is true of most European patients, who often belong to the poorer and more ignorant class, scout the idea of their having leprosy or that the disease is in any way contagious, and if released would be likely or certain to evade and neglect any precautionary conditions laid down, and to be aided and abetted in doing so by their relatives and friends. We have had unfortunate experiences of this kind. In one instance, in the nineties, three young male European lepers—cousins, and nodular cases of highly infective type—with relatives living on adjoining farms, were, after a period of segregation on Robben Island, allowed to return home on condition that they were accommodated by themselves in a dwelling at an isolated spot where the three farms join, and that suitable and specified precautions were observed and carried out. Occasional visits were paid by the district surgeon and police. There were grounds for suspicion almost from the outset that the conditions were being evaded, though as a result of a system of scouts and warnings of the approach of strangers it was difficult to get definite evidence. After a few years, fresh cases began to crop up in other members of the families to which they belonged and other Europeans in the vicinity. An investigation carried out by the writer in 1906 disclosed the facts that other young people and children had frequently visited and even slept at the isolation building, that the infected inmates had often visited and spent the night at their own homes or in other dwellings, that in every way possible the precautions laid down had been disregarded—*also that twenty-one fresh cases had occurred in immediate contacts*, several of whom had already been removed and isolated. The two remaining original cases (one had already died) and the remaining “secondary” cases were then sent to Robben Island. In another instance where a well-to-do, intelligent, and apparently trustworthy European, with nodular leprosy, had been allowed home segregation at Maitland, near Capetown, in a separate dwelling some distance from his homestead, it transpired that he repeatedly visited and sometimes slept at his house, had meals with, kissed and otherwise came in close contact with his wife and children, and on one occasion was found in a Cape cart outside a well-known hatter’s in Capetown trying on hats and returning the misfits to the shopman.

European patients of the more intelligent and trustworthy type, in whose cases home segregation could safely be allowed, often prefer to remain in the institutions—frequently because they would be unwelcome guests at home and be shunned by their friends. Some to whom permission for home segregation had been given have, after a time, returned and been re-admitted at their own request. In connection with this matter, it is interesting to note that, after a very thorough and comprehensive investigation of the whole subject of the epidemiology of leprosy in Australia, Dr. Cecil Cook, Wandsworth Research Scholar of the London School of Tropical Medicine—in a Report published by the Australian Government in 1927—recommends a policy and procedure identical in all material respects with those which are at present being followed in South Africa. Dr. Cook’s principal recommendations are: Continuation of the system of compulsory notification and segregation at present in operation in Australia; thorough inquiry into each new case as regards probable origin, etc.; regular periodical clinical and bacteriological re-examination of intimate contacts, whose names and addresses, and changes of address, must be reported (re-examinations six-monthly for five years, and yearly for a further five years); Europeans of reliable class with no *B. leprae* in nasal secretion or discharges may be isolated at home on Norwegian lines and regularly re-examined and treated, but all native cases should be isolated in lazarettos and treated intensively; home isolation should only be authorized in pure anaesthetic cases of non-infective type and where the patient is trustworthy and can afford the cost of complying with the prescribed conditions and who, if so required, is prepared to employ an approved attendant.

A policy similar in all essential respects is at present being followed in the United States, Hawaii, and the Philippines.

TABLE K (i).—LEPER INSTITUTIONS: ADMISSIONS DURING THE YEAR ENDED 30TH JUNE, 1929.

Institution.	First Admissions.						Re-admissions.						Transfers from other Institutions.						Total.		
	European.		Native.		Coloured or Mixed.		Asiatic.		European.		Native.		Coloured or Mixed.		Asiatic.						
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.					
																	M.	F.	M.	F.	M.
Robben Island...	—	1	—	—	6	7	—	—	—	1	1	—	—	—	—	—	—	15	12	27	
Pretoria.....	11	6	102	52	3	2	—	—	7	2	—	—	—	—	14	1	—	142	68	210	
Mkambati.....	—	—	24	18	—	—	—	—	14	3	—	—	—	—	7	—	—	45	21	66	
Emjanyana.....	—	—	68	39	—	—	—	—	7	2	—	—	—	—	18	—	—	93	41	134	
Amatikulu.....	—	—	59	28	—	—	—	—	3	3	—	—	1	—	4	2	—	67	33	100	
Bochem.....	—	—	14	10	—	—	—	—	3	1	—	—	—	—	5	3	—	22	14	36	
TOTAL.....	11	7	267	147	9	9	—	—	34	11	1	1	1	—	48	6	8	384	189	573	

TABLE K (ii).—LEPER INSTITUTIONS: DEATHS OF PATIENTS DURING THE YEAR ENDED 30TH JUNE, 1929.

Institution.	European.		Native.		Coloured or Mixed.		Asiatic.		Total.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Robben Island.....	2	—	3	—	6	3	—	—	11	3
Pretoria.....	2	1	30	25	2	—	—	—	34	26
Mkambati.....	—	—	13	9	—	—	—	—	13	9
Emjanyana.....	—	—	58	20	—	—	—	—	58	20
Amatikulu.....	—	—	37	25	—	—	1	—	38	25
Bochem.....	—	—	15	6	—	—	—	—	15	6
TOTAL.....	4	1	156	85	8	3	1	—	169	89
										258

TABLE K (iii).—LEPER INSTITUTIONS: DISCHARGES, ESCAPES, TRANSFERS, ETC., DURING THE YEAR ENDED 30TH JUNE, 1929.

Institution.	Probationally Discharged as “Arrested and Non-Infective.”							Discharged as Non-Leprous.							Escaped.							Transferred to Other Institutions.						
	E.*		N.		C.		A.	E.		N.		C.		A.	E.		N.		C.		A.	E.		N.		C.		A.
							Total.							Total.							Total.							Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Robben Island.....	—	—	—	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13
Pretoria.....	7	3	11	21	2	2	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46
Mkambati.....	—	—	7	15	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
Emjanyana.....	—	—	39	47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Amatikulu.....	—	—	47	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Bochem.....	—	—	3	6	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
TOTAL.....	7	3	107	129	3	4	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	78

*E. = European. N. = Native. C. = Coloured or Mixed. A. = Asiatic.

TABLE K (iv).—LEPROSY: PATIENTS PROBABIONALLY DISCHARGED FROM INSTITUTIONS OR CLASSIFIED AS “ ARRESTED AND NON-INFECTIVE,” AND NUMBER OF SUCH PATIENTS SINCE READMITTED AS RECRUDESCENT.

	Probationally Discharged from Institution.					Classified as "Arrested and Non-infective" but remaining at Institutions at end of year.					Probationally Discharged Patients who have been re-admitted to Institutions as recrudescent.				
	European.	Native.	Coloured or Mixed.	Asiatic.	Total.	European.	Native.	Coloured or Mixed.	Asiatic.	Total.	European.	Native.	Coloured or Mixed.	Asiatic.	Total.
Year ended 30th June, 1923.....	11	468	23	1	503	3	40	—	—	43	—	8	—	—	8
Year ended 30th June, 1924.....	6	217	29	2	254	1	10	—	—	11	—	2	—	—	2
Year ended 30th June, 1925.....	6	94	5	—	105	—	10	—	—	10	—	2	—	—	2
Year ended 30th June, 1926.....	3	62	5	—	70	1	28	1	—	30	1	4	—	—	5
Year ended 30th June, 1927.....	2	166	3	—	171	—	59	2	—	61	4	12	2	—	18
Year ended 30th June, 1928.....	3	217	5	—	225	—	57	5	—	62	1	23	1	1	26
Year ended 30th June, 1929.....	10	236	7	—	253	6	137	7	—	150	—	19	2	—	21
TOTAL.....	41	1,460	77	3	1,581						6	70	5	1	82

TABLE K (v).—LEPER INSTITUTIONS: PATIENTS THEREIN ON 30TH JUNE, 1929.

Institution.	European.		Native.		Coloured or Mixed.		Asiatic.		Total.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Per sons.
Robben Island....	10	6	5	6	82	42	—	—	97	54	151
Pretoria.....	59	30	493	334	2	3	3	—	557	367	924
Mkambati.....	—	—	137	97	—	—	—	—	137	97	234
Emjanyana.....	—	—	317	196	—	—	—	—	317	196	513
Amatikulu.....	—	—	216	151	—	—	3	—	219	151	370
Bochem.....	—	—	61	49	—	—	—	—	61	49	110
TOTAL.....	69	36	1,229	833	84	45	6	—	1,388	914	2,302

TABLE K (vi).—LEPROSY: CASES REMAINING IN THEIR OWN HOMES ON 30TH JUNE, 1929.

	Certified and Awaiting Removal to Leper Institution.	Home Segregated.	Probationally Discharged from Leper Institutions.		Total.
			Still under Surveillance.	Released from Surveillance.	
Cape (Province proper)....	1	1	220	67	289
Transkei.....	40	5	302	72	419
Transvaal.....	6	1	273	60	340
Natal.....	46	2	299	35	382
Orange Free State.....	4	—	57	10	71
UNION.....	97	9	1,151	244	1,501

8. *Malaria*.—During the past year a severe epidemic occurred in the Natal-Zululand coastal belt, especially affecting the Districts of Eshowe, Mtunzini, Lower Tugela, and, to a lesser extent, Msinga, Nkandhla, Kranskop, and Lower Umfolosi. A circular was issued by the Department to magistrates in these and all other malarial districts on 10th October, 1928, furnishing copies of pamphlet “Directions for the Prevention and Treatment of Malaria,” calling attention to the need for laying in adequate stocks of quinine, and arranging for the establishment of depots and sub-depots for its distribution, free of charge to those unable to pay, and the prices to be charged to those able to pay, but who, owing to distance from a chemist’s shop or other good reason, were unable to obtain supplies at a reasonable price; also requesting recommendations or suggestions regarding any special measures in their districts. On 25th February, 1929, the Union Assistant Health Officer stationed in Natal issued a warning to sugar-planters and to the public, through the press, of the imminence of severe malaria along the northern coastal belt, and indicating the arrangements made regarding free blood examinations and for the supply of quinine, together with hints for prevention in both Europeans and natives; magistrates were simultaneously circularized and asked to report any special incidence. Simply-worded leaflets in Zulu were also printed and distributed.

On 12th March outbreaks were reported at Mtunzini, Amatikulu, and Stanger, the magistrates, however, stating that they had ample stocks of quinine and were prepared. On 15th April prevalence was reported worse in these districts, and a personal investigation was made by the Assistant Health Officer of the conditions at Tongaat and vicinity, where, however, incidence proved to be slight. On 1st May, the Secretary for Public Health visited Stanger and Amatikulu with the Assistant Health Officer, inquired into the position, and discussed the prevalence with the Magistrate, Stanger, and the District Surgeons of Lower Tugela and Mtunzini. Prevalence was then fairly severe amongst natives and Indians on the mills and plantations. Local stocks of quinine were ample. The position in the native reserves was unsatisfactory, but the district surgeons were active, though demands for quinine were slight. Incidence rapidly increased during the following week or so. Prompt steps were taken by the Department to mobilize medical officers and inspectors for duty in the area, and also to establish additional distribution depots and appoint a number of educated natives with horse transport to distribute quinine and other medicines to sufferers in the Reserves.

Nowhere in the affected area was there at any time during the epidemic any shortage either of quinine or of distributing and supervising staff, but considerable delay and difficulty resulted from the ignorance and prejudice of the natives themselves. The witch-doctors and herbalists (inyangas) were acutely antagonistic—probably influenced by the restriction of their licences under Section 98 of Act No. 13 of 1928. Some of them spread the story that the Government's medicine was intended to kill off the Zulus, but as improvement and recovery usually followed its use they fell back on the story that it would cause impotence and sterility; thus the use of effective remedies was seriously delayed and hampered.

On a number of sugar mills and plantations a large percentage—in some instances the majority—of the native and Indian labour force was attacked, and work was in consequence considerably delayed and disorganized. Employers who had devoted attention to malaria prevention and the care and treatment of their sick employees as a rule escaped lightly, but most of those who had neglected such measures suffered severely, and, as is usually the case in such circumstances, were vociferous in their condemnation of the Government for not having foreseen and prevented the outbreak. The type of the disease was mainly benign tertian, but among the natives there was a varying proportion of sub-tertian or malignant cases, with a tendency to affect the brain and central nervous system. Most of the area chiefly affected was outside the usual limits of annual malaria prevalence, so that few of the local natives had any degree of immunity acquired from previous attacks. A further factor making for severity of type and rapidity of spread amongst the labour force on the sugar-mills and plantations was the presence of a large proportion of natives from the Transkei and other parts of the Union where malaria is unknown. Such boys number about 15,000 out of a total labour force of about 25,000—many of them being “ rejects ” not up to the standards of health and fitness required for the Rand.

The epidemic tailed off towards the end of May, further subsided during the first fortnight of June, and after the third week of June fresh infections were negligible. A total of nearly a million quinine tablets was issued, together with epsom salts and other medicines; towards the end of the epidemic arrangements were made for the supply of tonic pills to convalescents. There is no system of registration of deaths in rural areas in the Union, also the natives group influenza, pneumonia, and other febrile diseases with malaria, under the term “ Umkuhlane,” but after careful inquiries the approximate deaths in the districts mentioned have been estimated as follows:—Lower Tugela, 900; Mtunzini, 800; Eshowe, 500; Lower Umfolosi, 160; Nkandhla, 140; Msinga (malaria deaths not separated; 300 from all causes); Krauskop, 130. There were also a few native deaths from malaria in Greytown and Weenen. Taking the seven first-mentioned districts, with a total population of about 6,000 Europeans, 19,000 Indians, 800 mixed coloured, and 215,000 natives, the mortality from malaria, as nearly as can be ascertained, was Europeans, 7; Indian and coloured, 151; natives, 2,600.

The main lessons of this severe epidemic are the need for better medical and health services amongst the natives in the Reserves, and for better medical and hospital services and facilities, and more attention to housing, diet, disease prevention, and general care of employed natives on many of the sugar mills and plantations. As regards the Reserves, probably the best and most practicable plan would be a system of trained native health visitors, to work under the control and supervision of magistrates, Native Affairs officials, and district surgeons. As regards employed natives, the first step towards effective and radical improvement of the existing state of matters in the Natal Zululand sugar belt should be the extension thereto of native labour laws similar—but with any necessary modifications and adaptations to local conditions—to those in force in the Rand, Witbank, and other “ native labour areas ” in the Transvaal, regulating the recruitment of natives and placing on employers specific duties in connection with the health and medical care of their native employees, with special provision in respect of natives brought from non-malarial areas. This has for years past been pressed for by this Department and the Director of Native Labour, but has been strongly—and so far successfully—opposed by the sugar industry.

During May, 1929, a severe but localized outbreak of malignant malaria—with blackwater fever as a sequel or complication in an exceptional proportion of cases—occurred at Komatipoort, a railway junction on the Portuguese border. This is a notorious malarial locality, with a population of about 150 Europeans—mostly employees of the Railway Administration with a few of their wives and families. About half the population was affected, the deaths in the village and neighbourhood numbering 9, of whom 8 were Europeans—including the District Surgeon, Dr. H. A. Lownds. An important causative factor in this outbreak was the neglect of measures and

precautions previously recommended by this Department to the Railway Administration and other authorities concerned, in regard to the canalization of the spruit which runs through the village, mosquito-proofing of dwellings, and the keeping of the vicinity of dwellings and a zone around the village clear of bush and vegetation.

In other malarial districts of the Transvaal incidence was light, except that during the late summer months it was rather more severe than usual in the Districts of Zoutpansberg—including the Messina area—Middelburg and Pietersburg including the Haenertsburg, Tzaneen Duivelskloof, and Groot Spelonken areas.

The Department has repeatedly represented to the Government, and pointed out in previous Annual Reports, that from the national health and economic points of view, malaria is the most serious human disease with which the Union has to contend, that a considerable population of both Europeans and natives is living under impoverished and disease-ridden conditions as a result of it, and that the agricultural and general development of a considerable part of Natal and the Transvaal—comprising large tracts of the most fertile and best-watered lands in the Union—is being seriously retarded by this disease. The inhabitants of the bad malarial areas are degenerating; as a rule, they get the disease in childhood, and, whilst developing a certain amount of immunity as a result of repeated attacks, they get enlarged spleens and other chronic symptoms which prejudice their physical and mental development and, in adult life, seriously impair their mental and bodily vigour and not infrequently render them classable as degenerate “poor whites.” In addition, in these badly-infected localities there is an annual crop, in the latter part of the malaria season, of cases of “blackwater fever.” Unfortunately it is the vigorous adult who, after repeated attacks of malaria, often develops “blackwater fever” and frequently dies. During last malaria season, the reported deaths of Europeans in the Transvaal from severe malaria and blackwater fever totalled 77, and this was on the whole a comparatively mild year.

In addition to this endemic prevalence there are recurring epidemics, usually with considerable mortality in both Europeans and natives, with an aftermath of enlarged spleens and impaired health in many of those who survive. It is extremely difficult or impossible to forecast these epidemics, the mosquitoes involved, and the other conditions being different from those obtaining in the Punjab and other countries where forecasts have been made with a certain amount of success; also it is useless to expect the Department or any other organization to work miracles when an epidemic is on. An epidemic wave of the disease usually starts suddenly as a result of a complicated chain of conditions and circumstances involving the presence of the specific infection, a susceptible population, the presence of anopheline mosquitoes, and facilities for their rapid multiplication, such as recurring slight rainfalls with spells of warm weather in between, or sometimes a single heavy rainfall followed by a prolonged spell of warm weather, and, at the time of the outbreak, a certain optimum air temperature and degree of humidity. Once started, it usually spreads like the proverbial wild-fire, and the most that can usefully be done on a large scale is to distribute quinine widely and make the best arrangements possible for the care of the sick. Under conditions obtaining in the Union, quinine prophylaxis—that is, the prevention of malaria by the regular daily use of quinine by all members of the community, is impracticable on a large scale; in any case, quinine is mainly a palliative, though a very effective one, and when given during an attack, although it may assuage symptoms and relieve the patient, it does not eradicate the infection from his system. What is wanted is *a special and adequate permanent organization* for dealing with malaria—to continuously carry on educative, preventive, and field experimental work and research, and give special assistance during epidemics.

Reference was made in last Annual Report to a proposal to convene an informal conference of medical officers, official and unofficial, to discuss the whole matter. That conference was held at Pretoria on 7th November, 1928, under the chairmanship of the Secretary for Public Health, the members present including Dr. A. J. Orenstein, Lecturer on Tropical Diseases in the University of the Witwatersrand, and who has had extensive experience of malaria, having been a member of the staff of Colonel Gorges during the construction of the Panama Canal. The primary and principal recommendation of the conference was the appointment—as a section or branch of the Department—of a small specialized staff for anti-malaria work, consisting, to start with, of, say, one medical officer with special knowledge and experience of malaria, and two or three lay inspectors. These proposals were strongly supported by the Council of Public Health, but were not sanctioned by the Government pending further investigation as to the necessity. The Government's approval has recently been obtained, and steps are now being

taken to appoint and organize this special section. The question of arranging for a malariologist of wide experience and international repute—say, one or other of the members of the Malaria Committee of the League of Nations Health Organization—to visit South Africa and inquire into and report on the malaria problem, is also being considered by the Government.

9. *Meningitis: Epidemic Cerebro-spinal*.—Of the year's total of 747 notified cases, 583 occurred in natives.

The greatest prevalence was on the Witwatersrand and in the Cape Peninsula. As usual, most of the cases on the Rand occurred during the windy and dusty period just prior to the first summer rains. The occurrence of the disease on the Witwatersrand is only to be expected where large numbers of natives are accommodated together in compounds, but in the Cape Peninsula overcrowding and unsuitable housing conditions among the poorer classes of the population are, no doubt, largely responsible.

On the mines, strict precautions against overcrowding by spacing of individuals in dormitories with partitions between bunks has done much to reduce incidence.

Actual cases are isolated as far as possible and treated with anti-meningococcal serum made from local strains of meningococci by the South African Institute for Medical Research. Whilst such measures can, as a rule, be effectively enforced in urban areas, in rural areas it is often difficult to secure reasonably efficient isolation.

10. *Pellagra*.—In parts of the world such as Italy, where the poorer sections of the community subsist almost exclusively on maize or mealies, pellagra is rife. It is curious, therefore, that so little has been heard of this disease among our mealie-eating Bantu population. Only three outbreaks of any importance are known to have occurred—one in 1906, when some 150 pellagrins were found among Zulu rebel prisoners; another in 1912-13 in the Pretoria Mental Institution, affecting about 60 natives inmates; and a recent outbreak in the Durban prison command, from which 64 cases were reported during the period December, 1927–December, 1928.

There is now fairly general agreement that pellagra is the result of dietetic deficiency. A pellagra-preventing dietary is necessary to obviate its occurrence. It is believed to be located in a vitamin which has been named P-P and is probably identical with the vitamin known to be necessary for the prevention of the canine disease known by American veterinarians as "black-tongue."

In view of these facts, the Department reviewed the Union prison diet scales to ascertain whether these might be responsible for the outbreak in Durban. Six such scales are used throughout the Union. The diet varies according to whether the prisoner is European, coloured, or native, and whether he is serving a sentence of over three months (long sentence) or three months or less (short sentence). All the official non-European diets were found to be physiologically deficient and in none of them is adequate vitaminic provision made. The least satisfactory is that of the short-sentence native prisoners, which is grossly deficient in calorific value and deficient also in protein, fat, and carbohydrate. It was among prisoners on this diet that cases were first reported, but later cases occurred also among natives receiving the long-sentence diet.

There can be no doubt that it is to these deficient diets that the Durban outbreak is primarily due. The fact that cases appear to have been largely confined to Durban, although similar prison scales are in use throughout the Union, must be attributed to accessory factors, such as the physiological stress resulting from strenuous work in a sub-tropical climate.

The attention of the Director of Prisons was drawn to the deficiency in the diets. His Department is faced with the difficulty of preventing prison conditions becoming too comfortable. The position is difficult, as the prisoners have often subsisted on a pellagra-producing diet previous to conviction. Even the deficient prison diet may, therefore, be attractive, and much of the deterrent effect of prison life may be lost. The Health Department has drafted and furnished to the Director of Prisons diet scales which are physiologically sound and balanced with but little increase in cost over the existing scales, and which from the prisoners' point of view are certainly not more attractive than those hitherto in use.

11. *Plague*.—(1) *Plague in Rodents*.—A careful re-survey of the Eastern Transvaal, Northern Natal, and Zululand, during September and October, 1928, revealed the fact that the gerbille population had increased considerably in these areas, and that the country embracing the Districts of Ermelo, north-western portion of Piet Retief, Paulpietersburg, Newcastle, Utrecht, and Dundee was heavily infested with gerbilles. From Dundee a narrow gerbille-infested corridor was found stretching along the Umfolozi River and

its tributaries to join up with the coastal belt of gerbille country passing north from Cape St. Lucia. North-east of this area, over a large tract of country, occupying the eastern portion of the Piet Retief District, the whole of the Ngotshe District, and the south-eastern portion of the Nongoma District, where the country is not suitable for gerbilles, other rodents, principally multimammate and striped mice, are numerous. The whole area adjoins those areas in the North-eastern Free State and South-eastern Transvaal (Wakkerstroom, Western Ermelo, and Standerton) where plague infection amongst veld rodents is known to exist. Only suitable conditions are required to precipitate a wave of plague infection amongst veld rodents throughout Northern Natal and Zululand.

Evidence of a recent and widespread epizootic amongst rodents was found in North-western Natal, in a tract of country bounded by a line drawn from Van Reenen's Pass on the north-west, along the southern side of the Biggarsburg Mountains to Waschbank on the east, and then south to Helpmakaar, Greytown, and New Hanover, skirting Maritzburg on its northern side, then south to Bulwer, westward to Himeville and the Basutoland border, and thence north to Van Reenen's Pass. No definite evidence of plague was forthcoming, but the findings were distinctly suspicious. If the epizootic was plague, it is remarkable that no human cases occurred; it may possibly have been "Tiger River" or "De Aar" disease, or some similar infection, but in any case it has for the time being greatly reduced the veld rodent population of that part of the country.

During the outbreaks of human plague in the Northern Free State, along the southern bank of the Vaal River opposite Vereeniging, signs of infection amongst rodents were discovered on the Transvaal side. A rodent survey was made, embracing the whole area between the Vaal River on the south (from the Rand Water Board's barrage on the west to Engelbrecht's Drift on the east), and the southern boundaries of the Municipalities of Randfontein, Krugersdorp, Roodepoort-Maraisburg, Johannesburg, and Germiston on the north. Over the whole area evidence of considerable and recent rodent mortality was found. South of a line drawn through Meyerton, Evaton, and Fochville as far as the Vaal River, infection was fairly old and gerbilles were found to be breeding up again. But north of this line infection was more recent, especially from Meyerton to Alberton, between the Jackson's Drift-Vereeniging road on the west, and the Klip River and Natal and Riet Spruits on the east, where in some parts rodent mortality appeared to be still occurring. In this area, however, owing to the nature of the country, gerbille colonies are patchy, so that infection would spread very slowly. This was not the case in the areas immediately to the south and south-east of Germiston and between Randfontein and the Crown Mines, where the colonies were more continuous and natural obstructions to the advance of veld rodent infection did not exist. The veld rodents in these localities constitute the most immediate menace to the Rand. As a result of these investigations, conferences between officers of the Union Health Department and the Municipalities of Johannesburg and Germiston were held, at which it was agreed that the two municipalities should co-operate as closely as possible in the destruction of rodents to the south and south-east of Germiston, where the boundaries of the two municipalities adjoin and where the danger from veld rodents was most evident. The position at the moment is satisfactory, but the danger remains; it is of the utmost importance that Johannesburg, Germiston, and the other Reef Municipalities should exercise the greatest vigilance as regards both man and rodents, actively carry on and encourage measures of rat destruction, and strictly enforce the regulations regarding the rat-proofing of stores, shops, and other buildings.

Similar remarks apply to all local authorities in the Cape Peninsula and South-western Cape Districts. The defences against spread of veld rodent infection along the line of the Cedarbergen and Olifants River—consisting of mountain range, river, irrigation canals, and a belt three miles wide kept free of rodents by the Department's rodent staff—have hitherto held, but it would be sanguine to expect them to do so indefinitely, despite every care and vigilance. During last summer, owing to the severe drought, the Olifants River became dry over considerable stretches in several parts of its course. The Department's rodent staff was hurriedly mobilized at the danger points and augmented, with the result that the danger period—until rains fell and brought down an effective barrier flow—was safely tided over.

(2) *Plague in Man*.—65 Cases of human plague occurred during the year, of which six were in Europeans. With the exception of one case in a wandering native, discovered at the Rand Water Board's pumping station at Zwartkoppies, all the cases occurred in localities where enzootic infection was known to exist. Twelve magisterial districts were involved (seven in the Orange Free State, three in the Cape, and two in the Transvaal), half of the total cases occurring in the Districts of Vredefort, Parys, and Heilbron.

The first outbreak in these areas occurred in the Heilbron District, involving the farms Vaalbank, Sandfontein, and Kruisementfontein, in the Viljoensdrift area, where one European and nine native cases of bubonic plague occurred—with five deaths. These three farms all adjoin each other, and the area affected includes two coal mines, the Cornelia and Clydesdale Collieries, and is in close proximity to the industrial town of Vereeniging. Consequently, some anxiety was felt lest the disease should spread and become established amongst the large number of natives employed on the mines, and even to Vereeniging itself. All precautions, including quarantine, deverminization, and prophylactic vaccination of contacts, were taken to prevent the spread of the disease by human agency. The management of the Cornelia Colliery, the mine nearest the outbreak, confined their native employees to the company's property. In addition, meetings were held with the Vereeniging Town Council, with the Managing Director of the Vereeniging Estates, Limited, and with the Farmers' Association, Coalbrook, and an endeavour was made to inaugurate a general campaign throughout the area against rodents. The response from the two former bodies was immediate, but the Farmers' Association, whilst passing resolutions to form an anti-rodent club to assist one another in anti-rodent measures, were not so enthusiastic.

Before the outbreak at Sandfontein had subsided, four further bubonic cases in natives occurred on the farm Orleans in the Kopjes area of the Vredefort District. The farm was visited by an Assistant Health Officer and rodent inspector, and the huts deverminized and placed under quarantine. There was one fatal case of bubonic plague on this farm in February, 1927. In the meantime six natives had died on the farm Saltberry Plain, about 3 miles to the west of Coalbrook Station, and about 7 miles south-west of Sandfontein. The original cases of this outbreak were attended by a private practitioner, who made a diagnosis of influenzal pneumonia, and it was only when the deaths, all occurring within a fortnight, had reached a total of six that suspicion of plague was aroused. The District Surgeon, Parys, was sent to investigate on Monday, 11th February, and found that two further deaths had occurred, one at Saltberry Plain and one on the farm Saaiplaas, bringing the total number of deaths up to eight. He immediately performed *post-mortems*, and specimens of tissue were sent to the South African Institute for Medical Research for bacteriological examination. The two farms were put under quarantine in the meantime. On 13th February, the Institute reported the tissues highly suspicious of pneumonic plague—a diagnosis which was subsequently confirmed bacteriologically. An Assistant Health Officer left for Parys the same night, arriving on the scene of the outbreak, accompanied by the district surgeon, on the morning of the 14th February. Two further cases were found on Saaiplaas, and it was discovered that the outbreak had originated from one case on Saltberry Plain, and that all subsequent cases had occurred in direct contacts amongst members of the same family or friends who had attended the funeral and subsequently slept in the hut where the deceased had died. All the cases had been pneumonic in type, except the original case, which was not seen by a medical man; the surviving relatives could not give a very coherent account of his illness, but it is probable that he died of either septicaemic or pneumonic plague, as no history of swelling or tenderness in the groins, axillae, or any of the other sites where buboes generally occur, could be elicited.

All the huts on both farms where cases had occurred were deverminized, the immediate contacts placed under quarantine, and vaccinated prophylactically. The movements of the other natives on the farms concerned were restricted, and the magistrates of adjoining districts, local authorities in the neighbourhood, and the Railway Administration were informed of the outbreak and warned to be on the lookout for any cases of suspicious illness.

As it was impossible to isolate cases in their own homes, an emergency field hospital was established on Saltberry Plain and the cases were removed to it. Although this procedure put a stop to the pneumonic cases, several bubonic cases occurred after an interval of 10 days from deverminization in some huts. The majority of the huts dealt with had mud walls, in which there were numerous cracks and crannies forming ideal shelter for fleas. Under these circumstances complete deverminization is extremely difficult. After re-deverminization, this "residential" outbreak was stopped.

The only other outbreak of any magnitude was on the farm Rustfontein No. 98, Wolmarastad District, Transvaal, where ten cases with six deaths occurred. The four surviving cases received serum prophylactically before the onset of the disease, which in their case was of very mild type. The usual precautions with regard to quarantine, deverminization, and vaccination were taken, and no cases beyond the circle of immediate contacts occurred. Unfortunately, during the year two district surgeons, Dr. Maciver, of Petrusville, and Dr. Hauptfleisch, of Parys, contracted the disease. Both received injuries whilst conducting *post-mortems* and developed axillary buboes.

Dr. Maciver was treated in his own home, whilst Dr. Hautfleisch was removed to Rietfontein Hospital. Both recovered, but Dr. Maciver unfortunately developed deep-seated inflammation of one eye, which resulted in almost complete loss of vision in that eye.

Except in one instance—that of the native discovered at Zwartkoppies—it is probable that all the native cases were infected by fleas from plague-infected rodents either in, or in the vicinity of, their huts. It is a significant fact that, excluding the two doctors who contracted the disease accidentally, 90 per cent of the cases occurred in natives housed in mud-walled huts in which grain was also stored. Of the four remaining European cases, three were undoubtedly infected in buildings in which previous mortality amongst rodents had occurred. It would be no exaggeration to say that in 95 per cent. of human cases plague is contracted in buildings and not in the open veld. Except under special circumstances, as when persons sit or rest for a time near infected rodent burrows, the chances of being bitten by an infected flea in the open veld are almost negligible. Whilst the squatting system, in vogue on most farms, militates against the provision of better housing for both natives and Europeans of the poorer class, employers in plague-infected areas could do much to prevent human plague by ensuring that the quarters and surroundings of their employees are kept clear of rodents. This can be easily and cheaply done with the cyanogas pump. Quite apart from humanitarian considerations, the avoidance of the inevitable dislocation of operations and the restrictions inevitable to an outbreak of plague would more than compensate them for the extra expense and time spent on the extermination of rats in dwellings, outbuildings, servants' quarters, and the veld in the immediate vicinity. The storage of grain or other rodent-attractive material in or near dwellings should also be carefully avoided.

TABLE L.—PLAGUE CASES AND DEATHS IN THE UNION DURING THE YEAR ENDED 30TH JUNE, 1929.

Province.	Number of Outbreaks.	European.		Coloured or Native.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape.....	4	2	—	7	6	9	6
Natal.....	—	—	—	—	—	—	—
Transvaal.....	2	—	—	11	7	11	7
Orange Free State.....	11	4	1	41	28	45	29
UNION.....	17	6	1	59	41	65	42

(3) *Plague Research*—"De Aar Disease."—During the summer of 1928-1929, an extensive epizootic occurred amongst veld rodents in De Aar and neighbouring districts. Starting in De Aar early in November, the epizootic later affected the rodent population at centres as far away from the original focus as Calvinia, Kenhardt, Philipstown, and Victoria West, involving a wide tract of country measuring about 130 to 150 miles in a north-and-south direction, and some 250 miles from east to west. Apart from a few small towns and villages, the area is sparsely populated. The country is for the most part sand veld with sparse scrub—the veld rodents being mainly Namaqua gerbilles (*Desmodillus auricularis*), but with Karroo rats (*Parotomys*), striped mice (*Rhabdomys pumilio*), and long-eared mice (*Malacothrix typicus*) also plentiful in places. Namaqua gerbilles were the animals almost exclusively affected. Mortality in domestic mice was reported from two places in the area—namely, at Paarde Vlei Station, 8 miles north of De Aar (where two house-mice were found dead in a cottage), and in outbuildings on the farm Doornfontein, 6 miles west of Petrusville. In the former case, the carcasses proved free from plague; in the latter case the carcasses were too decomposed for examination, but there were reasons to suspect the existence of plague infection in the locality.

The epizootic was at first thought to be plague, but laboratory tests were negative and no human cases occurred. Further investigations by officers of the Department in conjunction with officers of the South African Institute for Medical Research, established the fact that it was due to an organism belonging to the Pasteurella group of bacteria, but its exact specific relationships have not yet been fully established. In the meantime, the disease has been given the tentative title of "De Aar Disease." Details with regard to mode of infection and spread, and seasonal, climatic, and other conditions favouring spread, have yet to be worked out. The facts already elicited are of great scientific interest, and may prove to have important practical applications. Reports of the epizootic by the officers of the Department and

the Institute who were specially concerned, and of the investigations so far carried out and their results, have been furnished to the International Health Office at Paris, and are being published. The epizootic has had the salutary effect of greatly reducing the rodent population over a large part of the Northern Cape Province and so, for the present, reducing the risk of plague prevalence therein.

12. *Rabies*.—This disease is known to have occurred in dogs in Port Elizabeth and neighbourhood in 1893, and in Southern Rhodesia in 1902 and subsequent years up to 1913. Since 1920 sporadic cases of suspected rabies have been reported in various parts of the Union north of the Orange River. All these cases were investigated by the Department and notes of the results published in previous Annual Reports; in each the symptoms and course of the disease were very suggestive of, or indistinguishable from, rabies, and the patient had been bitten within a period of two or three months before onset by a mongoose, genet cat, or dog, but in none of them was the diagnosis definitely established and confirmed by laboratory examination and biological tests. This was usually attributable to delay in forwarding materials for pathological examination. Cases were generally not reported until after death, and if material was sent, by the time it reached the laboratory it was usually so decomposed as to be useless for examination. Steps were taken by the Department to bring the facts of the matter—and the need for prompt action where any case or suspected case was reported—to the notice of magistrates, district surgeons, medical practitioners, local authorities, and others concerned.

On the 30th October, 1928, two European boys on their way to school caught, and were bitten by, a “meercat” (yellow mongoose) in the Wolmaransstad District. Both became ill on 17th November. Dr. Herzenberg was called in, and he promptly reported the facts to this Department. Arrangements were made for both boys to be removed to the Klerksdorp Hospital, for *post-mortem* examinations to be made if the disease proved fatal, and for the prompt dispatch by motor-car of material packed in ice to the South African Institute for Medical Research, Johannesburg. One boy died on 20th and the other on 23rd November, after typical attacks of rabies. Materials were forwarded as arranged, and on arrival at the Institute were divided into two portions—one of which was immediately conveyed to the Veterinary Research Laboratory, Onderstepoort, and the other retained for examination by the Institute. Microscopic examination of the materials and inoculation tests made at both Institutions confirmed the diagnosis of rabies. An excellent report on these cases, from the clinical standpoint, was published by Dr. Herzenberg in the *Journal of the Medical Association of South Africa* of 22nd December, 1928.

Thus ended a long search, analogous to that in connection with enzootic plague recorded in the Department's Annual Reports for 1921 and 1922, which has resulted in establishing the fact that the infection of another human disease—rabies or hydrophobia—exists in smouldering and enzootic form amongst, and is being perpetuated and spread by, the wild fauna over a considerable area of the Union, thus confirming the fears expressed on page 35 of the Department's Annual Report for the year ended 30th June, 1924.

The species of wild animals involved are the yellow mongoose (or “rooi meercat,” *Cynictis penicillata*) and the genet cat (“Muskejaatkat,” *Genetta felina*)—both carnivores, belonging to the family *Viverridae*. Of the two, by far the more common and important is the yellow mongoose, which exists in considerable numbers over the Free State and the high veld of the Transvaal and Northern Cape, usually in association with ground squirrels (“waaierstert” or bushy-tailed meercat) and the “stokstert” meercat or suricat. Although they eat sick or dead ground squirrels, they normally do not prey on, but live on friendly terms with, these animals and associated veld rodents. It is a curious circumstance that the infection in South Africa is perpetuated and spread mainly by members of the cat family, whereas in other countries the main agents are dogs, foxes, jackals, and other members of the canine family. It is also remarkable that there has, so far, been no serious spread, but only occasional sporadic cases, in the Union.

The facts regarding the Wolmaransstad cases were brought to the notice of the public and all concerned by means of a comprehensive circular issued by the Department, abstracts of which were published in the press throughout the Union. Since then the danger from bites of “meercats,” cats, and dogs has been more generally recognized, and many persons so bitten have sought medical aid and been treated with anti-rabic vaccine, which is prepared and stocked in the Department's laboratory at Capetown, and is also stocked in the laboratory at Durban and the South African Institute for Medical Research, Johannesburg.

The following table summarizes the known occurrences up to 30th June, 1929:—

TABLE M.—RABIES IN THE UNION OF SOUTH AFRICA FROM 1916 TO 30TH JUNE, 1929.

Date.	District.	Cases.	Interval between bite and onset of symptoms.	Interval between onset of symptoms and death.	Biting Animal.	Site of bite.
1916.....	Heilbron, O.F.S.....	Two human deaths.....	Particulars not recorded.		Mongoose.....	—
December, 1920.....	Frankfort, O.F.S.....	European male child (7 years).....	6 weeks.....	2 days.....	Mongoose?.....	Shoulder, finger.
September, 1923.....	Vredefort, O.F.S.....	European farmer (27 years).....	12 weeks.....	5 days.....	Dog.....	Left forearm.
January, 1924.....	Middelburg, Tvl.....	Agricultural student (21 years).....	8 weeks.....	6 days.....	Mongoose.....	Finger.
November, 1925.....	Bloemfontein, O.F.S.....	European male adult.....	5 weeks.....	8 days.....	Dog.....	Not recorded.
June, 1926.....	Wolmaransstad, Tvl.....	European boy (7 years).....	6 weeks.....	4 days.....	Mongoose.....	Right hand, between thumb and first finger.
September, 1926.....	Vryburg, C.P.....	Female European child (3½ years).....	4½ weeks.....	3 days.....	Genet cat.....	Throat.
December, 1926.....	Ermelo, Tvl.....	(A) Native child (5 years)..... (B) Native woman (about 30).....	(A) About a month... (B) Slightly longer....	A few days..... A few days.....	(A) Dog..... (B) Dog.....	(A) Head. (B) Arm.
February, 1927.....	Standerton, Tvl.....	European boy (9 years).....	(A) 9 weeks..... (B) 6 weeks.....	2 days.....	(A) Dog..... (B) Mongoose.....	(A) Right arm. (B) Thumb.
August, 1928.....	Bloemfontein, O.F.S.....	European boy (7 years).....	6 weeks.....	3 days.....	Mongoose.....	Right thumb.
*November, 1928.....	Wolmaransstad, (Farm Syfergat), Tvl.....	Two European boys (12 years).....	19 days.....	One 3 days, other 6 days	Mongoose.....	Fingers.
*January, 1929.....	De Aar (Burgherville Village), C.P.....	European girl (13 years).....	3½ weeks.....	2 days.....	Genet cat.....	Scratched on neck.
*February, 1929.....	Boshof—Dealesville Area (Farm Blandford), O.F.S.	Dog.....	—	2 days.....	—	—
*February, 1929.....	Boshof—Dealesville Area (Farm Blandford), O.F.S.	Native male.....	4 weeks.....	1 day.....	Dog.....	Left cheek.
*April, 1929.....	Lichtenburg (Farm Doornhoek), Tvl.....	Native male.....	4 weeks.....	7 days.....	Mongoose.....	Right forefinger.
*April, 1929.....	Wolmaransstad (Farm Syfergat), Tvl.....	Mongoose.....	—	—	—	—
*May, 1929.....	Boshof (Farm Witdam), O.F.S.....	Ox.....	19 days.....	4 days, when ox slaughtered	Mongoose.....	?
*May, 1929.....	Boshof (Dealesville Township), O.F.S.....	Mongoose.....	—	—	—	—

* Confirmed by laboratory examination.

13. *Scarlet Fever*.—Notifications of cases of scarlet fever for the year were 2,996, a decrease of 187 on last year's total. As usual the greatest incidence was in the high veld and colder parts of the Union.

Scarlet fever in South Africa is usually of a much milder type and less commonly associated with serious complications than is the case in European countries. As a consequence, prophylactic measures applicable to susceptible children *en masse* have not received the same attention as in the case of diphtheria. Nevertheless the disease and the dislocation of studies which it causes when occurring in children of school-going age justify such measures once they have been definitely established on a safe and easily workable basis. The work in this direction at present being done in Europe and America offers hope that, within a short period, it will be possible to immunize children effectively and safely against both diphtheria and scarlet fever by means of "double" or simultaneous inoculation.

14. *Smallpox and Vaccination*.—24 Outbreaks of smallpox, involving 17 magisterial districts, occurred during the year, but prompt vaccination of the contacts and surrounding population, coupled with isolation and disinfection measures, proved successful in preventing spread and eradicating the infection in each instance.

The Public Health Act, No. 36 of 1919, made vaccination against smallpox compulsory for all. It came into operation at the beginning of 1920, and thereafter the necessary machinery for carrying out and enforcing its vaccination provisions was organized. Strenuous opposition was from the outset offered by conscientious objectors, and repeated representations on the subject were made to the Government. During 1921 prosecutions for non-compliance were instituted in various centres and convictions obtained, but in June, 1922, the Government gave an undertaking to the public, and instructions to the Department that prosecution of genuine conscientious objectors should be discontinued until the matter had been further considered by Parliament. As there were no means or procedure provided under the law whereby the genuine could be distinguished from the spurious, this entailed the complete discontinuance of prosecutions, in so far as this rested with the Government. The natural result has been a marked and continuous falling off in the number of persons vaccinated and the accumulation of an unvaccinated population, entailing serious and increasing risk of epidemics of smallpox. An Amendment Bill, providing for the exemption of "conscientious objectors," was drafted in 1923, but for various reasons long delay occurred before it was dealt with by Parliament and finally passed as Act No. 15 of 1928.

That Act came into force on 1st October, 1928, and allowed a period of six months—that is, up to 31st March, 1929—within which anyone could apply for exemption in accordance with its provisions. After this latter date such exemption can only be obtained if applied for within six months of birth or of entry into the Union. Table N (i) shows for each Province the numbers of applications for exemption received and granted under these provisions. Most of the adults who applied for exemption had already been vaccinated. The great majority of applications were made on religious grounds by members of religious sects and bodies such as the Apostolic Faith, Christian Science, and the "Full Gospel Church," many being received in batches from particular congregations and framed in identical or similar language, suggesting stimulation and organization by the ministers or leaders of the congregation or body concerned.

It is to be noted that exemptions do not apply to emergency vaccinations in connection with outbreaks or to persons landing from infected vessels.

TABLE N (i).—EXEMPTIONS FROM VACCINATION UNDER SECTIONS 10 AND 11 OF ACT No. 15 OF 1928.—1ST OCTOBER, 1928 (THE DATE OF COMMENCEMENT OF THE ACT) TO 30TH JUNE, 1929.

Province.	Applications Received.			Applications Granted.		
	Adults.	Infants and Children.	Total.	Adults.	Infants and Children.	Total.
Cape.....	1,712	1,612	*3,324	1,545	1,429	2,974
Natal.....	1,494	2,004	3,498	509	1,934	2,443
Orange Free State.....	968	1,084	†2,052	513	766	1,279
Transvaal.....	3,439	3,783	‡7,222	3,173	3,595	6,768
UNION.....	7,613	8,483	16,096	5,740	7,724	13,464

* Not including 155 applications in regard to which enquiries are still being made.

† Not including 20 applications in regard to which enquiries are still being made.

‡ Not including 38 applications in regard to which enquiries are still being made.

There is now throughout the Union a large accumulation of unvaccinated children and young persons. The Union is never free from smallpox—sometimes two or three small outbreaks, sometimes ten or a dozen or more. These have so far been controlled and eradicated by prompt vaccination or re-vaccination of the “contacts” and surrounding population and the tracing up and isolation of cases, but, under the circumstances, the country has been lucky in escaping a severe and widespread epidemic. There were, however, considerable prevalences in the Rand area in 1926 and in Durban in the latter part of 1927, this latter outbreak being of an exceptionally virulent nature, and including 55 cases with 15 deaths.

It is now possible to organize and carry out an effective system of enforcement, so that in future parents or guardians of children must either—

- (a) obtain exemption within six months of the birth of the child, following the procedure laid down in Act No. 15 of 1928; or
- (b) have the child vaccinated and register successful vaccination within 13 months of its birth (subject to the provisions in the regulations for postponement on grounds of ill-health); or
- (c) face prosecution, and, if necessary, repeated prosecution, in the courts of law.

The Department is making all necessary arrangements for bringing this system into operation throughout the Union without delay.

The Department provides ample supplies of pure and tested calf vaccine lymph prepared at the Government Vaccine Institute, Rosebank, Capetown, which is available on application, free of charge, to district surgeons, medical practitioners, and local authorities.

The following tables show the occurrences of smallpox and public vaccinations performed during the year:—

TABLE N (ii).—SMALLPOX: CASES AND DEATHS REPORTED DURING THE YEAR ENDED 30TH JUNE, 1929.

Province.	Number of Districts Affected.	European.		Non-European.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape.....	10	14	1	13	—	27	1
Natal.....	—	—	—	—	—	—	—
Orange Free State.....	1	—	—	3	—	3	—
Transvaal.....	6	—	—	12	—	12	—
UNION.....	17	14	1	28	—	42	1

TABLE N (iii).—STATE AS TO VACCINATION OF CASES OF SMALLPOX REPORTED DURING THE YEAR ENDED 30TH JUNE, 1929.

Particulars.	European.		Non-European.		Total.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
*Previously Vaccinated.....	12	1	11	—	23	1
Unvaccinated.....	2	—	17	—	19	—
TOTAL.....	14	1	28	—	42	1

* In most cases many years previously.

TABLE N (iv).—PUBLIC VACCINATIONS DURING THE YEAR ENDED 30TH JUNE, 1929.

Province.	Number of Centres at which Public Vaccinations were held.		Number of Visits of Public Vaccinators to Centres.		Numbers Vaccinated.				Total.
	Urban.	Rural.	Urban.	Rural.	Europeans.		Non-Europeans.		
					Primary.	Re-Vaccination.	Primary.	Re-Vaccination.	
Cape.....	175	1,682	1,014	1,886	11,915	812	94,653	66,409	173,789
Transvaal.....	77	393	935	438	6,681	1,855	54,920	99,270	162,726
Natal.....	49	297	316	329	1,282	366	30,803	3,113	35,564
Orange Free State.....	52	247	204	248	4,295	513	10,660	974	16,442
TOTAL.....	353	2,619	2,469	2,901	24,173	3,546	191,036	169,766	388,521

TABLE N (v).—VACCINATION OF INFANTS AND CHILDREN IN THE CLASSES OF THE POPULATION WHICH REGISTER BIRTHS, YEAR ENDED 30TH JUNE, 1929.
(THESE FIGURES DO NOT INCLUDE RE-VACCINATION OF 12-YEAR-OLD CHILDREN.)

Particulars.	Cape.		Transvaal.		Natal.			Orange Free State.	Union.
	Cape District.	Remainder of Province.	Rand Area.	Remainder of Province.	Durban.	Pietermaritzburg.	Remainder of Province.		
Births Entered in Vaccination Register.....	10,858	35,597	8,884	10,765	2,074	660	1,991	5,304	76,133
Successfully Vaccinated.....	4,291	1,238	484	901	1,674	610	2,301	243	11,742
Insusceptible to Vaccination.....	26	3	9	4	40	11	43	4	140
Vaccination Postponed owing to Illness.....	76	57	20	30	336	114	393	42	1,068
Previously had Smallpox.....	—	—	—	—	—	1	—	—	1
Deaths of Infants under Two Years Registered.....	2,351	2,175	802	758	155	61	167	280	6,749
Ratio Percentage of Vaccinations Registered to Births Registered during the Year (after allowing for deaths of infants under two years).....	50·7	3·7	6·1	9·0	89·3	103·8	128·5	4·9	17 1

TABLE N (vi).—RE-VACCINATION OF TWELVE-YEAR-OLD EUROPEAN CHILDREN IN NATAL, YEAR ENDED 30TH JUNE, 1929.

Particulars.	Durban.	Pieter-maritz-burg.	Remainder of Province.	Total.
Registrations of twelve-year-old European children.....	1,236	468	1,135	2,839
Successfully vaccinated.....	565	230	636	1,431
Insusceptible to vaccination.....	50	40	68	158
Vaccination postponed owing to illness....	15	7	19	41
Previously had smallpox.....	—	—	1	1
Ratio percentage of vaccinations to twelve-year-old registrations.....	49·8	57·7	62·1	56·0

15. *Tuberculosis*.—(1) *General*.—Notifications during the year showed some increase as compared with last year—6,261 as compared with 5,491 for the year ended 30th June, 1928. There are, however, especially amongst non-Europeans so many cases that are never seen by a medical man that notification figures are no reliable index of the actual prevalence of the disease in the Union.

The Tuberculosis Research Committee has continued its investigations throughout the year, and Professor Lyle Cummins, who is directing the research, is visiting the Union on his third and final tour of investigation. The activities of the Committee have covered a wide field, embracing inquiries into the pathological, clinical, statistical, dietetical, industrial, social, and racial aspects of the problem amongst natives employed on the mines and other industrial enterprises and also amongst the natives and coloured persons in their own homes, within and outside the boundaries of the Union. These investigations have brought to light many new features in the etiology and pathology of the disease, which will be embodied in a report which it is expected will be published in the course of the next year.

(2) *Responsibility for Hospitalization of Cases of Tuberculosis*.—In May, 1929, the Provincial Administration, Natal, notified the Department that after 30th September, 1929, cases of pulmonary tuberculosis would not be admitted to the Durban Government (Addington) Hospital, and expressed the hope that, from and after that date, the Department of Public Health, in conjunction with the Town Council of Durban, would provide accommodation for cases of tuberculosis in communicable form.

As this raised issues of far-reaching importance, the matter was submitted for the opinion of the Government Law Advisers. The Law Advisers, in their opinion, refer, *inter alia*, to Section 85 (5) of the South Africa Act, which confers upon the Provincial Councils the power to make Ordinances in relation to the establishment, maintenance, and management of hospitals, and to Sections 24, 25, 26, and 51 of Act No. 36 of 1919, as amended by Sections 4 and 6 of Act No. 15 of 1928, dealing respectively with the establishment by a local authority of hospitals for infectious disease, its power to admit cases to hospital, its duty to do so where necessary to prevent the spread of the disease, and the Provincial Administration's duty, when so requested by the Minister, to make provision in general or chronic sick hospitals or elsewhere for cases of tuberculosis or other infectious disease. Here the Law Advisers remark that the provision of Section 51 does not in any way detract from the responsibilities of Provincial Administrations under the South Africa Act, which relegated to it the functions in respect of hospital provision which previously belonged to the Central Government.

The opinion proceeds as follows:—

“The question then is how far those provisions of the Public Health Act, imposing certain duties on the local authorities in respect of hospital accommodation of tubercular patients, has relieved the Provincial Administrations from the obligation to provide hospital accommodation for these cases. The principle governing the matter, in so far as local authorities are concerned, is the danger to the public health arising from the liability of the patient to infect others. Where this danger does exist, it is the duty of the local authority under Section 26 to ensure that adequate measures are taken to prevent the spread of the disease, and, where necessary for that purpose, those measures must include provision for the hospital accommodation of the patient: where there is no active danger of the patient being the

means of spreading the disease but it is nevertheless desirable to guard against the possibility of such a danger arising, the local authority may, in terms of Sections 24 and 25 take action, but there is no legal duty upon it to do so unless specifically required by the Minister.

In every case of tuberculosis not embraced within these limits, i.e. in every case where there is no duty upon the local authority under Section 24 or 26 to take action, or where it does not exercise its powers to take action under Sections 24 and 25, the matter of the hospital treatment of the patient is within the functions of the Provincial Administration. All such rights, duties and responsibilities in respect of the hospital accommodation of a tubercular patient which, prior to Union, vested in the Central Government by reason of its administration of hospitals, now vests in the Provincial Administration, and that Administration cannot, by virtue of the fact that the Legislature has, in respect of a particular disease prescribed certain circumstances in which the matter must or may be dealt with by a local authority, evade its responsibilities in respect of the hospital accommodation of the patient where those circumstances are not present."

This opinion applies also to all infectious diseases falling under the sections mentioned.

(3) *Nelspoort Sanatorium*.—The following table summarizes the work of the institution during the year:—

TABLE O.—ADMISSIONS, DISCHARGES, DEATHS, ETC., AT NELSPOORT SANATORIUM.

	Total.	European.			Non-European.		
		Male.	Female.	Total.	Male.	Female.	Total.
In Sanatorium on 1st July, 1928	81	33	26	59	14	8	22
Admitted during year.	274	111	83	194	36	44	80
TOTAL.....	355	144	109	253	50	52	102
Died during year.....	9	4	3	7	—	2	2
Discharged during year.....	256	105	74	179	38	39	77
TOTAL.....	265	109	77	186	38	41	79
In Sanatorium on 30th June, 1929	90	35	32	67	12	11	23

The patients admitted during the year were in the following stages of the disease:—

<i>Race.</i>	<i>Stage I.</i>	<i>Stage II.</i>	<i>Stage III.</i>
European	31.5 per cent.	38.1 per cent.	30.4 per cent.
Non-European	33.7 per cent.	28.7 per cent.	37.6 per cent.

Of the 274 admissions during the year, 222 were free, half their cost being paid by the local authority and half from the Department's vote, 19 were part-paying or contributing, and 33 were full-paying patients.

The average stay of patients in the institution was: Europeans, 106 days; non-European, 101 days.

Of the 256 patients discharged, 83 were noted as "much improved," 147 as "improved," and 26 as "stationary."

In addition to the usual lines of treatment which have been followed in previous years, sun treatment in the solarium pavilions has been continued. This treatment has not been in existence at the institution for a long enough period to warrant any definite conclusion as to its beneficial effects. Artificial pneumothorax and sanoerysin treatments have also been adopted with good results in a number of cases. Professor Lyle Cummins, who visited and inspected the sanatorium during the year, subsequently wrote in very appreciative terms of its lay-out, organization, and work, remarking that it is "serving a splendid purpose and is quite in line with modern sanatoria in England and elsewhere." Except during the hottest part of the summer season, the European wards and pavilions are usually full and with a waiting

list; the number of paying patients applying for admission is steadily increasing. Most of the non-European cases are sent in by the Capetown Municipality and Cape Divisional Council; few are sent in by other local authorities, so that the accommodation for non-European patients is usually only about half-full. Owing to the general shortage of trained nurses throughout the Union, great difficulty has been experienced in maintaining an adequate nursing staff at the institution. The recently completed irrigation scheme on the institution farm is proving a great success, the farm and garden now producing ample supplies of mutton, milk, butter, vegetables, and other produce for the institution, in addition to supporting a flock of Merino sheep. Jackal-proof fencing of the farm has now been completed; fencing into paddocks and grazing areas is now being proceeded with, and when this is completed a considerable increase of revenue from wool-production is anticipated.

(4) *Tuberculosis in Dairy Cattle*.—As indicated in previous Annual Reports, this has been the subject of much representation to and discussion with the Department of Agriculture. During the past year or so the requirement—under the Stock Diseases Act of 1911, administered by that Department—of tuberculin testing with negative results before removal of cattle from the Cape Peninsula and neighbouring districts to other parts of the Union, also the payment of compensation for animals compulsorily slaughtered on account of tuberculosis, have been discontinued. In reply to an inquiry from this Department regarding the matter and the future policy of the Department of Agriculture, the Director of Veterinary Services and Animal Husbandry wrote under date 25/6/1929:—

“ With regard to the general policy of the Department, I can assure you that we are fully alive to the interests of public health. The Department has now under consideration a comprehensive scheme of dealing with tuberculosis, and in this scheme it is proposed to commence with the eradication campaign in the larger municipalities. We have, for instance, been in consultation with the Durban Municipality for some months and are now awaiting final acceptance of a definite scheme which has been placed before the Durban Municipal Council. In this scheme the local authority is required to shoulder part of the financial responsibility which is involved in paying compensation for reactors that have to be slaughtered.

The present intention is to start our eradication campaign in one centre and to extend operations to other centres, as funds become available and experience in dealing with the disease is gained. As soon as a definite decision has been taken on this matter, I shall communicate with you again.”

16. *Typhus Fever*.—The following table shows the cases and deaths reported during the year:—

TABLE P.—TYPHUS FEVER: CASES AND DEATHS REPORTED DURING THE YEAR ENDED 30TH JUNE, 1929.

Province.	Number of Districts Affected.	European.		Non-European.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape.....	52	27	—	1,293	168	1,320	168
Natal.....	12	17	—	48	8	65	8
Orange Free State.....	9	1	—	83	16	84	16
Transvaal.....	4	—	—	11	1	11	1
UNION.....	77	45	—	1,435	193	1,480	193

There was a slight increase in the number of cases reported as compared with last year. Nearly 90 per cent. of the total cases occurred in the Transkei, which has always been the great endemic area of the disease in the Union. The disease was specially prevalent in the Districts of Xalanga, Tsolo, and Glen Grey. Measures against the disease are hampered by the apathy and carelessness of the natives in regard to keeping themselves free from lice and reporting outbreaks. It would seem that the effects of the lessons they learnt and the degree of “ mass immunity ” acquired during the severe prevalence of six or eight years ago are tailing off.

17. *Venereal Diseases: (1) General.*—The following table summarizes the work done in connection with venereal diseases by district surgeons, local authorities, and institutions during the year:—

TABLE Q.—VENEREAL DISEASES: CASES TREATED AND ATTENDANCES, YEAR ENDED 30TH JUNE, 1929.

Locality.	In Hospital.				Outdoor Attendances.				Grand Total.
	Syphilis.		Gonorrhoea and Other Venereal Diseases.		Syphilis.		Gonorrhoea and Other Venereal Diseases.		
	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	
(1) By District Surgeons.									
Cape.....	22	888	23	141	242	8,817	154	353	9,170*
Natal.....	2	226	—	448	40	1,197	34	359	1,556*
Transvaal.....	13	447	14	30	136	2,844	351	183	3,027*
Orange Free State.....	—	16	—	8	232	3,544	98	387	3,931*
(2) At Institutions.									
Barberton.....	—	169	—	—	—	—	—	—	169
Bloemfontein.....	8	125	8	24	—	—	—	—	165
Bochem.....	—	1,074	—	12	—	—	—	—	1,086
Capetown.....	37	96	58	44	5,814	8,587	5,104	2,790	11,377
Colesberg.....	—	14	—	—	—	—	—	—	14
Cradoek.....	—	98	—	—	—	—	—	—	98
Durban.....	43	615	61	93	1,763	666	2,559	366	6,166
East London.....	—	—	—	—	257	784	379	306	1,726
Elim.....	1	854	—	25	—	273	—	—	1,153
Johannesburg.....	—	—	—	—	4,314	—	3,889	—	8,203
Kimberley.....	8	205	10	12	9	806	—	3	809
Kingwilliamstown.....	—	112	—	7	11	29	19	—	29
Krugersdorp.....	3	6	—	—	24	40	34	6	46
Kuruman.....	—	30	—	—	—	334	—	—	334
Olifantshoek.....	—	—	—	—	10	150	—	1	151
Mphalele.....	—	57	—	—	—	780	—	—	780
Oudtshoorn.....	—	—	—	—	52	231	—	—	231
Pietermaritzburg.....	—	37	—	—	144	553	107	283	836
Port Elizabeth.....	—	2	1	4	801	2,138	2,652	2,622	4,760
Port St. Johns.....	—	3	—	—	—	67	—	2	69
Pretoria.....	—	—	—	—	736	4,055	287	—	4,055
Rietfontein.....	88	1,934	160	547	2,612	2,546	—	—	2,546
Sekukuniland.....	—	102	—	5	—	2,831	3	46	2,877
(Jane Furse Memorial)									
Stellenbosch.....	—	16	—	—	36	596	—	—	596
Victoria West.....	—	1	—	—	—	—	—	—	—
Vryburg.....	—	75	—	1	—	374	—	—	374
TOTAL.....	225	7,202	335	1,401	17,233	42,242	15,670	7,707	49,949
									92,015

* Individual patients, each of whom attends three times on an average.

The expenditure on free issues of anti-syphilitic drugs during the year amounted to £6,477—a decrease of £722 on issues for the previous year. This decrease was largely due, as intimated in last year's Annual Report, to restriction of the large quantities requisitioned by some local authorities, and the fact that the expenditure has increased beyond the sum specifically voted for the purpose. Such restriction has been exercised especially in regard to issues of potassium iodide, of which some medical officers in charge of venereal clinics have been in the habit of distributing large quantities to patients. As this is a very expensive drug and as large and long-continued dosage with it is unnecessary, these medical officers have been requested to restrict the quantities issued.

At the suggestion of the British Ministry of Health, on behalf of the Health Committee of the League of Nations, a uniform system of notation will in future be employed in all Union Government Laboratories in rendering reports on serum tests (Wassermann, Kahn, etc.) for syphilis. This will bring the Union laboratories into line with the leading pathological laboratories of other countries, which are approved by the Health Committee of the League of Nations, and will render it possible to compare the results published by such different laboratories and also the methods employed by different pathologists.

The difficulties met with in the treatment of native and mixed coloured cases are very great. Ignorance, apathy, and carelessness of the risks of untreated disease; prejudice against European methods of treatment, fear of isolation during treatment and distance from medical aid, are the main causes militating against effective and widespread treatment.

A great deal of good work in treating this disease is being done by district surgeons throughout the Union. It is obvious that the great majority of local authorities do not yet realize their responsibilities in regard to these diseases in respect of which the Government has made provision under the Public Health Act and regulations for bearing the greater part of the financial burden involved.

(2) *Rietfontein Hospital*.—This institution continues to treat large numbers of patients, especially natives, suffering from venereal disease. (See accompanying table.) The medical superintendent reports that considerable numbers of the patients sent into the institution are not suitable for the object aimed at by the institution, viz., intensive treatment so as rapidly to render the patients non-infective. Many local authorities appear to regard this institution as a chronic sick hospital to which all pauper cases of venereal disease in the chronic stage should be sent and therefore demand the admission of all native and other pauper cases suffering from chronic syphilis for whom there is no local provision and which are therefore in the way. Were these chronic cases all to be admitted, the institution would quickly be swamped and no room be found for the early cases which are dangerously infective, and which can be rendered non-infective and discharged in a short time.

VI.—GENERAL.

1. *Sanitation, Refuse Disposal, etc.*—A gradual improvement in the local administration of sanitary matters in the smaller towns of the Union is taking place. In many instances it is found that former negligence in these matters was due mainly to lack of realization of their importance on the part of the local authority. The increased employment of qualified health inspectors has rectified this and a distinct movement in the right direction is shown by the establishment of municipal water schemes, municipal abattoirs, general improvement in the sanitary services concerned with the removal of night-soil, domestic refuse, and slop water, the regulation of the milk trade, and the stabling of animals, the better control of native locations, and generally an increasing desire on the part of local authorities to provide their communities with the benefit of an organized municipal health service. The efforts of existing local authorities are considerably hampered by the lack of foresight of their predecessors, when framing local by-laws under the various Provincial Ordinances. This applies particularly to building by-laws, the discrepancies of which in the past have led to considerable crowding on sites in the central portions of some of many towns. This congestion in turn has produced problems in connection with ventilation, lighting, and drainage which in many instances could only be remedied at prohibitive costs, which owners of property are naturally reluctant to undertake. Under the circumstances the most that can be done is to ensure that, by the adoption of new and up-to-date regulations, such mistakes will not be repeated in the future and that these undesirable features will be eliminated gradually as old buildings are replaced by new.

Recently the Transvaal Provincial Administration approved of an excellent series of regulations (originally drafted for and adopted by the town of Louis Trichardt) as model regulations for the smaller local authorities in the Province. The prompt adoption of these regulations by many Transvaal towns shows a spirit which augurs well for the future.

At the same time it must be admitted that there are still many towns in the Union which are distinctly backward. In some instances, particularly in those parts of the country which have been affected by drought or in which the election of councillors rests largely with an impoverished electorate, a natural reluctance to increase public expenditure, with a consequent rise in local rates, nullifies the efforts of the more progressive sections of the community. But in others, local authorities show a determined reluctance to shoulder their responsibilities and carry out their duties.

Systematic inspections of health and sanitary circumstances of local authority areas are regularly made by the health officers of the Department and the personal contact between them and local government bodies and officials is doing much to stimulate interest in public health matters.

2. *Housing*.—Full details of the working of the Housing Act, No. 35 of 1920, from the date of its commencement are given in the report of the Central Housing Board for the calendar year 1928, which was laid in type-script on the Tables of Parliament. A summary of the position as at the 30th June, 1929, is given in the following table:—

TABLE R.—HOUSING ACT, No. 35 OF 1920: WORKING FROM PROMULGATION (16TH AUGUST, 1920), TO 30TH JUNE, 1929.

Province.	Loan Applications Approved.			Loan Issues.	Number of Houses.					
	European.	Non-European.	Total.		Completed.	Under construction.	Approved, but not yet commenced.	Total.	Total for European occupation.	Total for non-European occupation.
	£	£	£	£						
Cape.....	988,136	469,975	1,458,111	1,191,790	3,951	208	644	4,803	1,485 (a)	3,318 (b)
Natal.....	459,124	48,034	507,158	496,503	520	60	20	600	421	179 (c)
Orange Free State.....	425,439	22,560	447,999	399,842	876	356	483	1,715	475	1,240 (d)
Transvaal.....	709,726	188,768	898,494	870,960	2,387	11	40	2,438	854	1,584 (e)
UNION.....	2,582,425	729,337	3,311,762	2,959,095 (f)	7,734	635	1,187	9,556	3,235	6,321

(a) Includes a hostel to accommodate 86 persons.

(b) Includes 903 single rooms in blocks.

(c) Includes 3 barracks and 16 single rooms in blocks.

(d) Includes 24 single rooms in blocks, the balance of 1,216 representing the approximate number of dwellings to be built out of a total loan of £21,465 made to three local authorities for use exclusively in purchasing materials to be advanced to coloured persons and natives building their own homes.

(e) Includes 118 single rooms in blocks, 3 compounds and 3 hostels.

(f) Includes £364,661 re-issued out of repaid capital.

Operations under the Housing Act have undoubtedly assisted very materially in meeting the house shortage, not only in the large urban centres, but also in a number of the smaller towns and villages. Out of loans totalling over £3,300,000 which have been approved, some £1,865,000 is for financing schemes designed to cater for the needs of the poorer classes, including close on £730,000 for the housing of coloured persons and natives.

It must be admitted, however, that very little headway has been made in improving the housing conditions of the very poor class, earning, say, £10 a month and under, and it is this phase of the problem that of recent years has assumed such acute proportions and calls for an early solution.

Up to the present, the policy of the Government has been to leave the housing problem to be dealt with by local authorities with assistance from the Government by way of loan funds at a bare economic rate of interest, namely, 5 per cent., except that during the first two years of the operation of the Act, when building costs were very high, the rate of interest was fixed at 4 per cent., and a total of £751,000 was loaned out at the latter rate. In 1921, owing to the financial stringency, there was a considerable curtailment, and subsequently a temporary suspension of the programme contemplated under the Act.

When the Act came into operation there were, broadly speaking, two aspects of the problem. The first was the general shortage of houses arising from the cessation of building during the war, which applied to all classes of the population, and the second was the reform of housing conditions of the poorer classes, which had arisen prior to the last war, but was brought more vividly to light as a result of war conditions and also by the influenza epidemic in 1918.

The Housing Committee of 1919, on the recommendations of which the Housing Act was based, emphasized the urgent need not only for more houses, but for better houses; that relief of the housing shortage should proceed concurrently with housing improvement; and that the erection of a fairly good class of house should be aimed at, which would automatically set free lower-grade accommodation for the poorer classes.

That it was the intention to deal under the Housing Act with both phases of the problem is evidenced by Section 7 (3), which lays down that before approving of any scheme the Administrator may require the local authority in whose area it is intended that such scheme shall be carried out, to make reasonable provision for the poorest section of the population, including the coloured and native people.

There is no instance to record of an Administrator having exercised the power referred to in the preceding paragraph, by holding up the carrying-out of a housing scheme pending reasonable provision being made by the local authority for the poorest section. Under the Act, the whole of any loss arising is entirely borne by the local authority, and the natural tendency of local authorities has been to favour the class of loan which entailed the least risk of loss. In this attitude, local authorities have, generally speaking, been supported by Provincial Administrations, but notably so in the Transvaal Province, where, especially in the smaller centres, the Provincial Administration has not been sympathetic towards the initiation of housing schemes for the poorer European class, for the reason that such schemes would be likely to prove uneconomic and involve the local authority in loss.

In October, 1928, the Central Housing Board made a special inquiry into the sanitary and housing conditions of Indians in and around Durban. This inquiry was the outcome of one of the conclusions at the Round Table Conference on the Indian Question in South Africa, held in Capetown during 1926, and in terms of which the Government expressed its willingness to appoint a Committee to investigate the matter. The investigation, a copy of the report on which was laid on the Tables of Parliament, demonstrated only too clearly the urgent need for improving the deplorable conditions under which numbers of the poorer class of Indian are housed at the present time. While the Board arrived at the conclusion that the main solution of the problem lay in the extension of the Durban borough boundaries, it recognized that any such extension would take time to accomplish, and that meanwhile it was necessary to consider in what other directions useful action could be taken with a view to easing the acute position which had arisen. It was accordingly recommended that of the sum of £50,000 which had been earmarked under the Housing Act for Indian housing, an amount of £25,000 be made available to the Durban Corporation for erecting, under a scheme, two- or three-roomed cottages for letting or sale on easy terms to Indians, and that the balance of £25,000 be made available to the local authorities of the areas concerned, for granting individual loans in terms of Section 6 of the Act to selected Indians who owned small plots of ground in freehold and desired to erect thereon small cottages for personal occupation. It is disappointing to record that up to the present not a single loan application has come forward from the local authorities concerned in respect of proposals to be financed out of the £50,000 in question.

As to the better type of house costing, say, £1,000 and over, it is thought that the shortage has now been largely met at the majority of centres, and that private enterprise may safely be relied on to meet future needs in respect of dwellings of this class.

Unfortunately, similar remarks do not apply to the cheaper type of house; indeed, the shortage of these has become more acute of late years, especially in the industrial centres, where the position has been aggravated by a steady influx from rural areas. The question varies in urgency and complexity in the various Provinces and towns, and affects principally the poor white, coloured, Asiatic, and native sections of the population. The permanent betterment of the conditions involves such questions as the gradual improvement of the varied standards of living of these sections; the ability to pay economic rents on desirable standards of accommodation; the drift of people of these classes into the towns; and the defining of residential areas suitable to the needs of the community.

Credit must, however, be given to a number of local authorities who have made, and are continuing to make, praiseworthy efforts to better the housing conditions of the poorer classes, including the coloured and native population. The main difficulty has been the inability under present conditions to build houses at a price on which economic rents can be paid by such persons. In an endeavour to bring about a reduction of building costs, this Department in conjunction with the Native Affairs Department, raised with the Department of Labour in 1926 the question of exempting from the provisions of the Wages Agreement made under the Industrial Conciliation Act, No. 11 of 1924, persons employed on the erection of houses for occupation by coloured persons and natives on land set aside by a local authority for the purpose of a location. In support of such exemption it was pointed out that the rental paid by occupiers of municipal houses in locations is fixed on a basis sufficient to cover interest and redemption; that if the wages laid down in the agreement are paid in connection with the erection of such dwellings, the rental will have to be considerably increased; and that it was hardly just that persons who themselves did not, in practice, participate in the benefit of a fixed skilled wage, should be compelled to pay for a class of labour above their standard, which they did not require, and the immediate effect of the employment of which was the payment of a rental above their means. The National Industrial Council of the Building Industry, to which the matter was referred by the Labour Department, refused to agree to the granting of a general exemption, but intimated that specific applications for exemption in respect of such work would receive sympathetic consideration, and local authorities were accordingly advised to make such application through the Labour Department.

In practice, the procedure indicated in the preceding paragraph has resulted in all applications for exemption being referred by the Industrial Council at Johannesburg to the various district committees concerned for their recommendations. The arrangement cannot be regarded as satisfactory, as apart from the circumlocution it entails there is also the possibility of difficulties arising by way of protracted negotiations and differential treatment at the various centres. In a few small location schemes the necessary exemption has been granted, but in the case of large schemes, such as the development of the new native location at Langa by the Capetown Corporation, involving a capital expenditure of over £250,000, the Industrial Council refused to grant exemption. It was proposed by the Labour Department to simplify the procedure by an amendment of the Industrial Conciliation Act of 1924, which would make it possible for the Minister of Labour, by notice in the *Gazette*, to determine that the Industrial Agreement for the Building Industry should not apply in connection with the erection of location houses for natives. An amending Bill on the lines mentioned was introduced into Parliament, but did not get beyond the First Reading stage.

In the case of purely native housing, no applications for financial assistance under the Housing Act are approved unless supported by the Native Affairs Department, after satisfying itself that there is need for additional housing accommodation, and with due regard to the underlying policy of the Natives (Urban Areas) Act of 1923. Under the latter Act, the intention is to restrict the number of natives residing in an urban area to that which is necessarily required for normal labour requirements, and not to encourage any further extension of this permanent population; that further labour requirements be met by natives accommodated in hostels and barracks, residing in the urban areas only for the period of their engagement, and returning to their kraals after completion of the term of their contracts; and that in the case of married natives, accommodation be limited to meet the requirements of such families as are permanently domiciled, and the members of which are employed or are rendering necessary services in the urban area.

It is becoming increasingly recognized that under present-day conditions the poorer classes in the towns—both European and coloured—are unable to pay an economic rent for housing of a sanitary and reasonably adequate type, and that, if gross overcrowding and insanitation are to be remedied and prevented, assistance must be given by the local authority or the State, or

both. Bound up with this are the questions of improvement of unhealthy areas and, where necessary, the expropriation of the land at site valuation or on some other special basis, also the tendency of the poorest sections of the community to drift into the towns. The Minister has undertaken to carefully investigate the whole position, with a view to bringing up considered proposals during the 1930 Session of Parliament.

3. *Town Planning*.—Town planning legislation now exists in the Transvaal, Cape, and Orange Free State Provinces, under which the Administrator—with the advice of a town-planning or townships board—exercises wide powers in regard to town planning and the laying out of new townships. The urgency for some similar system in Natal has been repeatedly and strongly represented to the Natal Provincial Administration, but so far nothing has been done, despite the fact that conditions in this respect along the South Coast and in other parts of Natal are steadily becoming worse and more difficult to remedy or improve. During the year the Administrator appointed a committee, of which the Union Assistant Health Officer stationed in Natal was chairman, to inquire into and report on the question of the establishment of local government in Doonside, Warner Beach, Winkle Spruit, Illovo, and Scottburgh, and in the same connection the Assistant Health Officer inspected and reported to the Administrator on Ixopo, Margate, and Empanjeni, but no definite action has so far resulted.

It appears to be very difficult to get any of these small urbanized committees to agree to any scheme of local government which would involve the levying of rates.

The Natal Provincial Administration should—as in the other Provinces—take powers to compel, where necessary, the establishment of a suitable form of local government in such communities, and should exercise such powers where considered necessary in the general interests of the public health and welfare.

4. *Child Welfare*.—As in previous years, the S.A. National Council for Child Welfare has steadily continued to develop its work and resources.

The number of individual child welfare societies has during the year increased by ten, and the total number is now 69. One existing society ceased to function, and another was absorbed into the Society for the Protection of Child Life, Capetown. This increase is due to the active propaganda work of the Council.

Very valuable work is being done by the individual societies both in urban and rural areas. Infant and maternity clinics; provision of meals for underfed children; assisting magistrates to care for “committed” children; helping to train delinquent children, and to provide for those abandoned, and similar philanthropic activities are of the utmost value. Many of the smaller societies receive annual grants from the Council to assist them in their work.

Another result of propaganda has been that two societies in Southern Rhodesia have become affiliated to the S.A. National Council, and it is hoped that the movement will extend rapidly in that country.

Nurse Zoutendyk, who has for some years done splendid work as nurse-lecturer, resigned during the year to be married, and two highly qualified nurses—Miss Cloete and Miss Meier—have been appointed in her place as nurse-lecturers.

The Child Welfare Magazine has now grown from a quarterly into a monthly journal, and continues to be widely appreciated for the helpful character of its contents. Its financial position is also growing steadily sounder, and it is expected that the magazine will soon pay its own way.

During the year a great forward step has been taken in the direction of co-ordination of work between the Federale Raad vir Moederkunde en Kindersorg and the National Council for Child Welfare. At a meeting held last February between representatives of both Councils a draft basis of co-operation was formulated and agreed to by all the delegates. This draft provides for a Joint Council, which, though it will have no power to initiate policy, will consider proposals from both parent bodies and will constitute the authoritative body through which the two Councils present proposals or requests to the Government. This draft basis is to be laid before both parent bodies during the present year, and it is hoped that it will be adopted by both and work satisfactorily.

Another important step taken has been the drawing up of draft rules for a National Adoption Committee under the Council. This scheme provides methods of ensuring that only suitable children are offered for adoption, and that only suitable adopters will be allowed to take such children, under carefully guarded conditions. This scheme will also be presented at the next Executive Council meeting for consideration.

The Lady Buxton Home for Mothercraft training has extended its work, and the emergency section has been transferred to the Home so generously donated by the Struben family, while the dietetic and mothercraft section has more room in the original building. Twenty-one “Athlone Nurses” received their certificates in mothercraft and four “Good Hope Nurses” were certificated during the year. Applications for these nurses are steadily increasing in number.

Registration of births and deaths and infantile mortality rates for European infants in each Province during the past year and the preceding ten years are shown in the following table:—

TABLE S.—EUROPEAN INFANTS: BIRTHS AND DEATHS UNDER ONE YEAR REGISTERED AND INFANTILE MORTALITY RATE,
I.E. DEATH-RATE PER 1,000 BIRTHS, 1918-1928.

Year.	Cape.			Natal.			Transvaal.			Orange Free State.			Union.		
	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.
1918.....	17,775	1,496	84·16	2,924	176	60·19	15,977	1,383	86·56	4,906	357	72·77	41,582	3,412	82·05
1919.....	16,749	1,351	80·66	2,910	191	65·64	15,338	1,326	86·45	4,727	382	80·81	39,724	3,250	81·81
1920.....	18,425	1,654	89·77	3,256	235	72·17	16,768	1,576	93·99	4,996	448	89·67	43,445	3,913	90·07
1921.....	18,062	1,382	76·51	3,370	203	60·24	16,582	1,374	82·86	5,288	379	71·67	43,302	3,338	77·09
1922.....	18,248	1,294	70·91	3,294	180	54·64	16,370	1,292	78·92	4,920	357	72·56	42,832	3,123	72·91
1923.....	18,296	1,353	73·95	3,229	197	61·01	15,619	1,261	80·74	5,037	328	65·12	42,181	3,139	74·42
1924.....	18,730	1,296	69·19	3,410	273	80·06	15,287	1,171	76·60	4,919	382	77·66	42,346	3,122	73·73
1925.....	18,366	1,343	73·12	3,509	206	58·71	16,348	1,059	64·78	5,188	361	69·58	43,411	2,969	68·39
1926.....	18,675	1,196	64·04	3,588	189	52·68	16,304	1,186	72·74	5,309	273	51·42	43,876	2,844	64·82
1927.....	18,537	1,293	69·75	3,435	166	48·32	17,050	1,359	79·71	5,325	314	58·97	44,347	3,132	70·63
1928.....	18,032	1,240	68·77	3,514	184	52·36	17,949	1,370	76·33	5,318	365	68·63	44,813	3,159	70·49

5. *Opium and other Habit-forming Drugs.*—In co-operation with the Police, Commissioner of Customs and Excise, and Postmaster-General, the enforcement of the regulations regarding opium, dagga, and other habit-forming drugs has been actively continued during the year. The following table shows the prosecutions and convictions:—

TABLE T.—SHOWING PROSECUTIONS AND CONVICTIONS UNDER LAWS RELATING TO HABIT-FORMING DRUGS DURING THE PERIOD 1ST JULY, 1928, TO 30TH JUNE, 1929.

Province.	European.		Native.		Asiatic.		Other Coloured.		Total.	
	Pro-seu-tions.	Con-vic-tions.	Pro-seu-tions.	Con-vic-tions.	Pro-seu-tions.	Con-vic-tions.	Pro-seu-tions.	Con-vic-tions.	Pro-seu-tions.	Con-vic-tions.
Cape.....	13	12	446	424	9	8	891	874	1,359	1,318
Natal.....	1	—	1,131	1,100	35	34	12	12	1,179	1,146
Transvaal.....	16	15	1,265	1,217	6	5	80	77	1,367	1,314
Orange Free State.....	3	3	296	283	—	—	24	24	323	310
UNION.....	33	30	3,138	3,024	50	47	1,007	987	4,228	4,088

Of the total of 4,228 prosecutions, 4,216 were in respect of dagga and 12 of opium; 30 lb. 5 oz. 120 gr. of opium and large quantities of dagga were seized and confiscated.

The total quantities of these drugs authorized to be imported into the Union during the year ended 30th June, 1929, were: Opium, 704 lb. 7 oz. 135 gr.; morphine, 81 lb. 6 oz. 438 gr.; cocaine, 53 lb. 1 oz. 164 gr.; heroin, 11 lb. 8 oz. 58 gr.; *Cannabis indica*, 33 lb. 5 oz. 211 gr.

The following exports of habit-forming drugs from the Union were authorized during the year ended 30th June, 1929: Opium, 7 lb. 6 oz. 319 gr.; morphine, 10 lb. 11 oz. 372 gr.; cocaine, 1 lb. 7 oz. 87 gr.; heroin, 7 oz. 238 gr.; *Cannabis indica*, 4 oz.

The permit for the cultivation of dagga for export purposes issued to a farmer in the Koster area, Rustenburg District, Transvaal, was renewed for the calendar year 1929.

6. *Slaughtering and Meat Inspection.*—At the meeting of the Council of Public Health held in November, 1928, the following resolution was passed:—

“ This Council, after careful consideration of the subject in all its bearings, considers that the period of cold storage for lightly infected measly meat required under the present regulations may be reduced to six weeks.”

By Government Notice No. 112 of 15th January, 1929, paragraph 3 of Regulation No. 16 of the Regulations *re* Slaughtering, Meat Inspection, etc., promulgated under Government Notice No. 2118 of 19th December, 1924, was rescinded accordingly and the following substituted:—

“ 16. (3) If the conditions specified in sub-clause (2) hereof are complied with, but not otherwise, the carcass, after removal of all obviously diseased portions, may be placed and kept in such cold storage for at least 42 days, and may thereafter be examined and passed as fit for human consumption.”

This reduction has met with general approval, and while it may be contended that it does not provide absolute safety, it may be regarded as reasonably safe, and certainly makes the utilization of such meat economically possible in many more cases than under the original regulation.

The opportunity was taken to specifically include the liver parasite *Stilesia hepatica* in No. 18 of the same regulations, as it had been found that the practice of meat inspectors, with regard to condemnation or otherwise of sheep's livers infested with this tapeworm, varied widely. This inclusion was, however, challenged as being unnecessarily drastic, it being pointed out that there was no proof that this parasite was transmissible or harmful to man. The amendment was withdrawn and substituted under Government Notice No. 463 of 8th March, 1929, by the following:—

“ 18. Every meat inspector with powers of condemnation finding in a carcass or organ evidence of any disease or parasitic infestation not mentioned in the preceding regulations, shall remove and condemn the whole or such portion of the carcass or organ which, in his opinion, is unsound, unwholesome, or unfit for human consumption.”

During the year several urban local authorities have erected public abattoirs, which, if not all ideal, at least constitute a great improvement. The slaughtering facilities available in a large number of the smaller municipalities are still disgracefully inadequate and insanitary, despite repeated representations made by this Department.

7. *Medical, Dental, and Pharmacy Matters.*—As already mentioned, the Medical, Dental, and Pharmacy Act, No. 13 of 1928, came into force on 1st January, 1929, and by Proclamation No. 3 of 1929 was extended, with certain minor modifications of an administrative nature, to the mandated territory of South-West Africa.

Under the special provisions of Section 100 of the Act, arrangements had previously been made for the election and constitution of the South African Medical Council and South African Pharmacy Board, the appointment of staff, and all other matters necessary to enable the new bodies to take over from the pre-existing provincial bodies and function as from the date of commencement of the new Act. The elections for the two new bodies took place during July, 1928, and preliminary meetings were held in Pretoria on 22nd and 23rd October, 1928, the first business meetings of the Council and the Board being held in Capetown from 22nd to 25th January, 1929. All the arrangements regarding the election and constitution of the new bodies and the commencement of their functions worked well, and both bodies are now working smoothly and efficiently. Various urgently necessary regulations under the Act—especially as regards the keeping and sale of poisons and the importation, sale, and use of opium and other habit-forming drugs—have already been promulgated.

During the early part of 1929, as a result of complaints from Rhodesia and subsequent investigations by the police in the Union, it came to light that several registered chemists and druggists, most of them having businesses in Natal, were selling in the Union and exporting to Rhodesia and other neighbouring territories various nostrums specially intended for natives. Advertisements and pamphlets regarding these nostrums, published in Zulu or other native language and widely distributed, set out that they were marvellous remedies for diseases of the generative organs or for sexual impotence or sterility; some were claimed to yield a special odour or otherwise have remarkable effects in increasing sex attraction. After investigation by the police, prosecutions were instituted under Section 65 of the Public Health Act, No. 36 of 1919, and, in one batch of prosecutions, five chemists and druggists were convicted and fined £5 each; there have been several further prosecutions since. The South African Pharmacy Board is actively co-operating in suppressing these disgraceful practices, and is issuing a circular to all registered chemists and druggists stating that any contravention of Section 65 of the Public Health Act will be regarded by the Board in a most serious light and render the guilty person liable to disciplinary action under the Medical, Dental, and Pharmacy Act. Steps have also been taken by the Postmaster-General, at the request of this Department, to stop the introduction into the Union by post of objectionable advertising matter of a similar nature.

At the end of June, 1929, the students in the medical and dental schools of the Universities of Capetown and the Witwatersrand were as follows:—

Medical, 591; public health, 7; dentistry, 26.

8. *Nurses and Midwives.*—There is a serious shortage of trained nurses throughout the Union. Many hospitals and similar institutions are finding difficulty in carrying on, some of them being able to do so only by employing an excessive proportion of probationers or unqualified persons, and one large hospital has been compelled to import a batch of 15 or 20 nurses from England. This general shortage has accentuated the dearth of nurses in the smaller centres and rural areas. It is not that there is any shortage of probationers—most of the larger hospitals have a long waiting list of applicants for training—but under present conditions and in view of the enormous “wastage” by marriage and otherwise, the recognized training schools are unable to turn out trained nurses in sufficient numbers to meet the needs of the country.

This state of matters is largely the result of the revised regulations framed by a conference of representatives of the four Medical Councils held at Johannesburg in December, 1923. These regulations, in the case of probationers in the larger hospitals, increased the training period from three years to three and a half years in the Cape Province, and from three years to 1,130 working days, or nearly four years, in the other three Provinces, with corresponding increases for probationers in the smaller hospitals, namely, from four years to four and a half years in the Cape, and to 1,412 working days, or nearly five years, in the other three Provinces. (In the Transvaal, under provincial legislation, an eight-hour day system is in force for all nurses, and working days are restricted to 286 per annum; there are no similar restrictions in the other Provinces.)

The Minister of Public Health, on the advice of the Department, delayed promulgation of these regulations for three years, it being feared that the increase of the training period would seriously interfere with the supply of trained nurses. But eventually, under pressure from the medical councils and nursing organizations, and after consulting the provincial administrations and the larger hospital bodies in the Union, the Minister agreed to put them in force; they were accordingly promulgated in January, 1927, with effect from 1st July of that year. The results show that the fears of the Department were well founded. They have entailed the complete loss of practically six months' output of trained nurses in the Cape and practically a year's output in the other three Provinces; also, as the training process now takes much longer, the annual output of the recognized training schools is permanently reduced by nearly 25 per cent.

Within reasonable limits, the desire of the leaders of the nursing profession to raise the standard of general education and nursing, training, and efficiency, is a legitimate and praiseworthy one, but there seems a tendency to lose sense of proportion in the matter. That it should take nearly as long to train a nurse as a doctor is preposterous. Further, to measure training efficiency by days or hours worked is fallacious; the restriction of working days and hours—under provincial legislation in the Transvaal—should reduce rather than increase the training period, as it allows more time for study. The proper way to raise the standard of efficiency is to increase lectures and demonstrations, devote more time and attention to other teaching and tuition, and allow probationers more time for study. With proper attention, organization, and facilities, a training period of three years should be fully adequate. This is the period required by the General Nursing Council in England, though the rules of some hospitals require a longer period. The whole matter should be reviewed and reconsidered from the standpoint of the public interest.

The shortage of midwives in the Union is even more acute and serious than that of trained nurses, and has also been accentuated by the increase of the training period required under the above-mentioned regulations—that period having been doubled for all pupil midwives other than trained nurses in the Cape, Natal, and Orange Free State. Since these regulations came into force, the minimum period in all four Provinces is six months for candidates who are already registered nurses and a year for all others. Apart from the increased expenditure of time, pupil midwives usually have to pay for board and lodging, so that the total cost of these items is generally about double what it was before the present regulations came into force. Apart from this, the number of confinements to be personally attended and dealt with by each pupil midwife has been increased. The old regulations required that each should “conduct,” under direction and supervision, at least 15 cases of labour and personally deliver at least 5 (Cape); “conduct” at least 15 and personally deliver 10 (Transvaal); “attend” 15 cases (O.F.S.); and “conduct,” under direction and supervision, at least 15 cases (Natal)—whereas under the new regulations, in all the Provinces each must attend, watch, and personally deliver at least 20 cases.

Hitherto there has been little or no provision for district midwifery training, so that in nearly all training institutions the only labour cases available to count for training are those in the institutions. Each training school is therefore compelled to limit its admissions of pupil midwives so that it can guarantee 20 labour cases to each during the training period.

A further restricting circumstance has been that in most training institutions priority and preference have hitherto been given to the trained nurse—who very often has no intention of practising as a midwife, but takes the course for the sake of the additional qualification and on the “off chance” of its being useful to her in securing appointments later on. The selection of trainees is generally left largely to the matron, and she, from the point of view of the easy and efficient working of her own institution, as a rule, and very naturally, prefers applicants who are already trained nurses. The result is that in most institutions recognized as midwifery training schools the pupil midwives who are already trained nurses far outnumber the others—indeed, in some instances they almost monopolize the available training facilities. It is right and proper that a reasonable number of trained nurses should be encouraged and helped to obtain the midwifery qualification, but experience shows that comparatively few of these subsequently devote themselves to midwifery. It is usually the woman who has not had a nursing training—very often a widow or a woman who for some reason is compelled to earn her own living—who trains as a midwife and thereafter sets up in practice as such. It is just this type of woman who is finding it increasingly difficult to get a midwifery qualification—she is being largely “squeezed out” of the training institutions by the trained nurse, and the time and cost of training have been doubled. It is not surprising that midwives of this type are rapidly diminishing—indeed, in some areas fast disappearing.

Another great difficulty is the tendency for midwives to congregate in or near the larger towns, leaving the smaller towns and villages and the rural areas largely unprovided for. Very valuable work in this connection has been done by the Federale Raad vir Moederkunde en Kindersorg of the Transvaal, and the Moedersbond Hospitaal, Pretoria, which is organized and managed in connection therewith. Under this organization, which has local committees in most districts of the Transvaal, the local committees select suitable girls with the necessary general education and send them to the Moedersbond Hospitaal for training—if necessary, defraying part or the whole of their training fees and maintenance costs. Their practical training is done partly in the institution and partly under a district midwifery nursing system worked in connection with the institution. After completion of training and passing the Medical Council's examination, the understanding is that the young midwife will return to her home district or some other small centre or rural area approved by the central committee, and there practise as a midwife for at least two years. Up to the present a total of 83 candidates have been so trained, and the system is working well; it might, with great advantage, be taken up in or extended to the other Provinces.

The whole matter of the training and supply of midwives—like the similar matter in respect of nurses—urgently calls for review and reconsideration from the point of view of the public health and general public welfare. Training should be made easier and cheaper for the type of woman who genuinely intends or undertakes to practise as a midwife; grants to midwifery training institutions by the Government, Provincial Councils, or other public bodies should be conditional on reasonable priority of admission to training being given to such persons; steps should be taken to increase training facilities and material; district midwifery training in the homes of the people should be encouraged or made compulsory, and means should be devised for encouraging and assisting midwives to settle and remain in practice in the smaller towns and villages and in the rural areas. The question of whether it is necessary to continue the present requirements as regards the minimum number of labour cases to be attended during the training course should also be carefully reconsidered, especially in view of the present great shortage of midwives and of confinement cases available for training purposes. It would appear that with proper tuition arrangements for a pupil midwife to attend and watch twenty labours and personally deliver ten patients would be reasonable and adequate in view of the conditions at present existing in South Africa. This would render it possible for the training schools, so far as labour cases are concerned, to double their present annual output of trained midwives.

9. *Nursing and Maternity Homes*.—The system of registration and inspection described in previous reports has been continued. The following table summarizes the work done during the year:—

TABLE U.—NURSING AND MATERNITY HOMES: INSPECTIONS DURING THE YEAR ENDED 30TH JUNE, 1929.

Place.	Total Number.	Number Inspected.	
		By Medical Officer of Local Authority.	By Government Health Officer.
<i>Cape Province</i> —			
Capetown.....	26	—	—
East London.....	8	8	—
Port Elizabeth.....	8	8	—
Elsewhere.....	63	—	12
<i>Natal Province</i> —			
Durban.....	27	—	—
Pietermaritzburg.....	6	6	—
Elsewhere.....	18	—	—
<i>Transvaal Province</i> —			
Johannesburg.....	26	25	—
Pretoria.....	9	—	—
Elsewhere.....	53	—	5
<i>Orange Free State</i> —			
Bloemfontein.....	4	—	—
Elsewhere.....	22	—	—
UNION.....	270	47	17

In view of the further powers conferred by Section 18 of the Public Health Amendment Act, No. 15 of 1928, and Section 38 (1) (d) of the Medical, Dental, and Pharmacy Act, No. 13 of 1928, the control and supervision of private nursing and maternity homes is being gradually tightened up. On 12th January last it was notified by circular minute to all concerned that in future no new home would be placed on the register or allowed to be opened unless the matron or person in charge is a registered nurse or midwife; also that no home will be registered or retained on the register unless the Minister of Public Health considers the home satisfactory as regards construction, equipment, staff, and otherwise. No home has so far been removed from the register and compulsorily closed, but warnings have been issued where material defects were disclosed.

10. *Inyangas or Native Herbalists in Natal and Zululand*.—Section 98 (2) of the Medical, Dental, and Pharmacy Act, No. 13 of 1928, is as follows:—

“ Nothing in this Act contained shall be construed as prejudicing or terminating the right of any native entitled at the commencement of this Act under the provisions of Chapter XIV of Law No. 19 of 1891 of Natal to practise amongst natives in Natal, or under the provisions of Zululand Proclamation No. 7 of 1895 to practise amongst natives in Zululand, as a medicine man or medicine woman or as a herbalist or midwife, but from and after the commencement of this Act no licence under either of the said laws shall be issued except on the order of the Minister or by way of renewal of a licence already issued and where application for such renewal is made within three months after the date of expiry of the previous licence.”

The working of this sub-section since the Act came into force has been administered and supervised by the Department. Up to the end of June, 41 orders have been issued by the Minister for the renewal of licences where more than three months had elapsed since the expiry of the previous licence, the usual explanations given being that the holder had overlooked the matter or had been ill or away from home. A sympathetic policy has been followed in such cases, where the magistrate recommends the application, especially in view of the fact that the restriction is an innovation. The intention is to enforce the restriction once it has become generally known amongst the natives. *New* licences are, however, in a different category, and although a considerable number of applications have been received, only three have so far been granted—and then only on the strong representation of the magistrate and assurances that the granting of the application was in the public interest.

All magistrates in Natal and Zululand have been circularized and requested to furnish particulars as to licensed inyangas in their districts as at 30th June, 1929, also their views regarding the system in general. On the date mentioned there were 1,352 licensed “inyangas” in Natal and Zululand, the numbers varying from half-a-dozen or less in Babanango, Helpma-kaar, Inanda, Lower Tugela, Umvoti, and Weenen, to 107 each in Ingwavuma and Nkandhla, and 196 in Nqutu; Durban and Maritzburg Districts have 23 each, Newcastle 28, and Klip River (Ladysmith) 33. Some magistrates think they “do a lot of harm,” others that they “do more harm than good,” others again that some have useful knowledge of native herbs and simples. Although several magistrates think that the time is not ripe for any change, the weight of opinion is that the chief stock-in-trade of the inyanga is necromancy and the appeal to the occult, combined with nasty-tasting medicines and strong emetics and purgatives, and that they should be replaced by trained native personnel. Most magistrates, however, emphasize that the change should be gradual and carried out so as not to cause resentment or antagonism; one suggests that inyangas themselves should be trained in European methods of treatment and remedies, pending the introduction of younger, better educated, and trained natives as health visitors and midwives.

It will be seen that in this matter magistrates almost unanimously support the general policy of the Department and that embodied in Act No. 13 of 1928. If few or no new licences are issued, renewals refused in most cases where the three-months period of grace allowed in the Act is exceeded, and a system of native health visitors and midwives developed, the change will be brought about very gradually and no “vested interests” will be prejudiced. It seems doubtful whether the suggestion to train inyangas themselves is practicable; they are mostly old and conservative, wedded to the old native methods, traditions, and superstitions and without any school education, but the idea is well worth bearing in mind. Most magistrates consider that if competent medical men (irrespective of colour), trained native health visitors, hospital orderlies, midwives, and nurse aids were provided or made available—either free of charge or at fees within the capacity of the natives to pay—the whole inyanga system would very soon crumble away; experience during the recent malaria epidemic certainly goes to confirm this view.

One magistrate refers to the need for defining the scope and functions of inyangas, and mentions a recent case before the court where a licensed inyanga was proved to be treating patients with European medicines—patent and otherwise—and was found not guilty on the ground that as the scope of licensed native inyangas is not defined in any way, what they may do, or may not do, is extremely doubtful.

11. *Sanitary Inspectors, Health Visitors, etc.*—Arrangements for training and examining sanitary inspectors, meat and food inspectors, health visitors, etc., detailed in previous Annual Reports, continue to work satisfactorily.

During the year 53 candidates passed the examination for sanitary inspector of the joint board of examiners of the Union Government and the Royal Sanitary Institute.

A proposal to establish a special register for these callings, under Section 32 of the Medical, Dental, and Pharmacy Act, is being considered by the South African Medical Council.

Under Section 2 of the Public Health Amendment Act, No. 15 of 1928, the provisions of Section 16 of Act No. 36 of 1919, regarding the refund by Government of part of the salary of certificated sanitary inspectors employed by local authorities and devoting the whole of their time to sanitary and health work, are extended to health visitors and certified meat and food inspectors similarly employed.

12. *General Hospitals.*—The hospital position in the Union outside the Transvaal remains very unsatisfactory, but some slight progress has been made in the direction of meeting the great shortage of beds revealed in the report of the Hospital Survey Committee.

In the Cape Province the work of levelling the site of the new Central Hospital at Groot Schuur has been completed and the Executive Committee of the Province has at last authorized the scheme to be proceeded with. This scheme aims at providing 842 beds at an approximate cost of £735,000, excluding the cost already incurred on levelling the site. The hospital will be capable of expansion to a considerable extent, and will, with other schemes in the Cape Peninsula such as the new Maternity Hospital and the enlargement of some of the existing institutions, go far towards relieving the inadequacy of hospital facilities in the Western Province. Similarly a new Central Hospital has been sanctioned for East London. Other large building schemes in the Cape Province comprise the reconstruction of the old Grey Hospital, Kingwilliamstown, which is nearing completion and the enlargement of the Port Elizabeth Hospital, the Frontier Hospital, Queenstown, the Umtata Hospital, and a number of smaller institutions.

In the Orange Free State a new Central Hospital is being built to replace the old National Hospital at Bloemfontein, the Kroonstad Hospital is being enlarged and new hospitals are projected for Bethlehem and Ladybrand.

In Natal the work of reconstructing the Addington Hospital is being carried out. During the year, the Natal Provincial Administration appointed a Committee to inquire into the working of this hospital. The report of the Committee, which was published in the *Provincial Gazette*, fully confirmed the findings of the Hospital Committee of Inquiry and of the Hospital Survey Committee in regard to the buildings and system of administration in vogue at this hospital, and it is to be hoped that, with the reconstruction of the buildings, the whole system of internal administration will be remodelled on up-to-date lines.

In the Transvaal, the work of building the new Pretoria Hospital has been proceeded with, but it is already clear that considerable further expenditure over and above the £300,000 actually sanctioned will have to be incurred before the new hospital can relieve the present congestion. A considerable extension to the native section of the Johannesburg General Hospital is being carried out and further extensions and alterations at that hospital are projected. In addition, three new hospitals were opened in the Province during the year at Leydsdorp, Lichtenburg, and Wolmaransstad.

In last Annual Report it was mentioned that a commencement had been made with the systematic annual inspection of State-aided hospitals in the Cape Province and the Orange Free State, and these inspections were completed during the year under review.

On the 1st January, 1929, Ordinance No. 18 of 1928 came into force and the hospitals of the Transvaal became State-aided institutions. Under the new Ordinance, a Hospital Advisory Council was established, and Sir E. N. Thornton, Senior Assistant Health Officer in this Department, was appointed by the Administrator, with the consent of the Minister, to act as Chairman of the Council. During the first half of the year the Council itself inspected and dealt with the aided hospitals on the Reef and in Pretoria. At the request of the Provincial Administration, the remaining hospitals of the Transvaal are being inspected by an Assistant Health Officer in this Department. Thus the hospitals of three of the Provinces of the Union are now being systematically inspected on behalf of the Provincial Administrations concerned, and during the year under review thirty-three hospitals and kindred institutions were visited and dealt with by Dr. Van der Spuy, who has been detailed for this duty.

The Committee appointed by the Natal Provincial Administration to inquire into the working of the Addington Hospital recommended *inter alia* that the Public Hospitals in Natal should be controlled by local boards in the same way as the hospitals of the other Provinces. Up to the present, this recommendation has not been acted upon.

Chronic Sick Hospitals.—Up to the present no improvement can be recorded in the Cape Province regarding the disgraceful conditions under which the majority of chronic sick patients in the Province have to be treated, and the old Somerset Hospital is still the main chronic sick hospital of the Province. During the year the Provincial Administration has been considering the question of erecting a new chronic sick hospital on the Cape Flats, but more recently the Department of Interior has raised the question as to whether the Administration might not be prepared to re-take over from that Department the Alexandra Hospital, which is entirely suitable for chronic sick and indeed was originally built for that purpose, whereas it is not entirely satisfactory as a mental institution. The matter is, I understand, still under consideration.

In the Orange Free State no provision for the chronic sick at present exists, but the Old National Hospital at Bloemfontein will be available when the new Central Hospital at that centre has been completed.

In the Transvaal, the Chronic Sick Hospital at Rietfontein affords quite inadequate accommodation for the needs of the Province, but when the New Pretoria Hospital is opened it is hoped that the Provincial Administration will reserve the Old Pretoria Hospital for this purpose.

In Natal, where previously no provision for chronic sick patients has existed, a suitable institution has been erected at Hillcrest, and although it will probably prove inadequate for the needs of the Province it is so designed that it can easily be enlarged.

13. *Vaccines, Sera, Pathogenic Cultures, etc.*—Under the regulations promulgated under Government Notice No. 2306 of 1920, eleven permits have been issued in respect of the calendar year 1929, all being to bacteriologists conducting laboratories.

Permits for the importation of calf vaccine lymph were granted by the Department under certain conditions up to and including the calendar year 1926. Since then no such permits have been issued, but it has come to the knowledge of the Department that certain consignments have actually been received in Durban from France. Steps have been taken to prevent further importations from overseas. Ample supplies of pure and tested calf vaccine lymph are prepared at the Government Vaccine Institute, Rosebank, Cape-town, and are available on application, free of charge, to district surgeons, medical practitioners, and local authorities.

Steps are being taken, in consultation with the S.A. Medical Council and S.A. Pharmacy Board, to frame regulations under Section 83 of the Medical, Dental, and Pharmacy Act, No. 13 of 1928, regarding the manufacture or importation, and the standardization, testing, and labelling of vaccines, sera, insulin, salvarsan, and other therapeutic substances the purity or potency of which cannot be adequately tested by chemical means; also regarding the standardization and testing of clinical thermometers and other instruments and apparatus used in the diagnosis or treatment of human diseases.

14. *Cancer.*—As stated in last Annual Report, there has been in recent years a steady increase in the number of deaths of Europeans from cancer in the Union. The following are the figures for each year since 1912 (medically certified deaths only):—1912, 607; 1913, 622; 1914, 625; 1915, 717; 1916, 672; 1917, 772; 1918, 764; 1919, 811; 1920, 884; 1921, 916; 1922, 993; 1923, 1,127; 1924, 1,143; 1925, 1,099; 1926, 1,127; 1927, 1,179.

The figures shown are less than the actual deaths, because all deaths are not medically certified. Amongst non-Europeans the incidence of malignant disease is also considerable.

The number of deaths from cancer resulting from ignorance of its nature and delay in diagnosis and proper treatment is appalling, and many lives would be saved if all the sufferers sought medical advice in the early stages of the disease. There is urgent need for spreading among all classes of the people knowledge of the nature of the disease, its predisposing causes and early symptoms, and the vital importance of early and competent treatment.

The mortality from cancer could be considerably reduced by better facilities for utilizing modern methods of treatment; these consist in the main of surgery, X-rays, and radium, or any combination of these.

Radium has long been used, somewhat empirically, for the treatment of cancer, but it is only in recent years that this means of treatment has been studied and developed on scientific lines. Formerly little or no definite knowledge existed regarding the conditions in which treatment would be likely to be beneficial, though inexperienced use was known to be very dangerous. Methods have now been devised for the application of this method of treatment to cancer of almost every part of the body except the stomach. Concurrently there has been a transformation in the modes adopted for the application of radium, old modes having been greatly improved and many new ones devised. Much valuable knowledge has also been gained in regard to the important question of the time of exposure, the quantity of radium to be employed, and the position to be selected for it, as functions of dosage.

Of the various forms of cancer for which radium has been tried, none affords a more striking example than cancer of the womb. It is now generally recognized that a course of radium treatment by modern methods will affect as successful a local removal of cancer of the neck of the womb as could be obtained by an operation; moreover this method is sometimes applicable to, and successful in, cases in which operation is impracticable or inadvisable.

The progress made in the technique of radium treatment generally has resulted in the cure of many cases of cancer. Facilities for such treatment are now considered a public necessity in all civilized countries. Such facilities are at present almost entirely absent in South Africa. The present position is that there is only a very small quantity of radium in this country, of which probably about half is held by private consultants. The Johannesburg Hospital has some, the New Somerset Hospital has about 30 milligrammes, but the very small quantities available are put up in an old-fashioned way, so that it is of little practical use.

All competent authorities agree that adequate supplies of radium put up in containers of modern type so as to be suitable for carrying out the latest methods of cancer treatment by specially trained staffs are essential if South Africa is to keep abreast of modern developments in the treatment of this fatal and distressing malady.

At the present time, practically the whole of the world's supply of radium comes from the Katanga Mines in the Belgian Congo. The present retail price is about £12,000 per gramme. To some extent this price is no doubt artificial, but even if further discoveries of radium-bearing ore are made, owing to the increasing demand for radium it is not likely that the price for small quantities will fall appreciably for some years at least, as even in the richest ores the quantity of radium is extremely minute and the process of extraction and purification is very tedious and expensive.

In view of the complicated and constantly developing technique required for the successful treatment of cancer with radium, the number of institutions equipped with the necessary specialist personnel and other requirements must necessarily be small. Radium used in institutions not so equipped cannot be employed to the best advantage. Its use in such circumstances must at best be less efficacious and may be nugatory or even harmful. For many years to come research and treatment must go hand in hand. For any such institution the following are essential:—

- (a) An adequate stock of radium for local application.
- (b) Up-to-date X-ray installations.—It is not enough to provide radium only. Certain cancer sites and states are better treated by X-rays for which a special type of plant is necessary; others again are better treated by X-rays in combination with radium.

- (c) Facilities for first-class surgery. For in-patients who are in the operable stage at the time of treatment, but who show themselves in a few weeks to be refractory to radiological methods, the best surgery possible should be available.
- (d) Experienced and fully trained personnel.
- (e) A fully equipped pathological laboratory.
- (f) A physics department is needed not only to undertake independent research, but to work out plans for the dosage, etc., of special cases. Further, every institution using radium should have at its disposal expert advice on (a) the safe custody of radium, (b) the protection of personnel, and (c) the tracing and recovery of radium fractions inadvertently lost or burnt.
- (g) Library.—An up-to-date and efficient library containing as complete as possible a collection of the literature on all branches of the subject published in any part of the world.

Such facilities in South Africa could probably only be made fully available immediately at Capetown and Johannesburg, even if funds were provided, but it will be obvious that in this country of great distances it will be absolutely impracticable for all patients from every part of the Union to be brought to these two centres. A centre at Durban should therefore also be established to serve Natal, a centre at Bloemfontein to serve the Orange Free State, and subsidiary centres for the Cape Province should be provided, preferably at Port Elizabeth and Kimberley. It would seem clear, however, that the first centres to be established should be at Capetown and Johannesburg, where provision could also be made available for training the personnel required for the other centres.

It is difficult to estimate exactly what quantities of radium will be ultimately required at the different centres to meet the needs of the Union. Probably at least 2 grammes of radium should be provided for each of the Capetown and Johannesburg centres; at least one gramme each should be aimed at for Durban and Bloemfontein and probably three-quarters of a gramme each for Port Elizabeth and Kimberley, or a total of seven and a half grammes for the Union.

In Great Britain the Radium Sub-Committee of the Committee of Civil Research has recommended that the existing stocks of radium in that country, amounting to 24.9 grammes, be supplemented by the purchase of an additional 20 grammes by the end of 1930, and that with a view to controlling its issue and utilizing it to the best advantage, a Board of National Trustees and also a Radium Commission be appointed—these bodies to act through the National Physical Laboratory as regards the custody of the radium, its preparation in suitable form for use and its loan and return. The sub-committee did not recommend that the money for the purchase of this should be provided by the Government, but suggested rather it should form an object of appeal to the public subsidized on the £ for £ basis by the Government.

In Australia, despite the fact that all matters relating to hospitals fall within the administration of the State Governments, the Commonwealth Government recently decided to purchase 10 grammes of radium and to establish for its control and supervision a National Radium Bank.

The position in the Union is that the Johannesburg Hospital Board has recently raised by public subscription an amount of £14,000 for the purchase of a supply towards which the Provincial Administration of the Transvaal has voted £1,000. This Hospital Board has already sent one of the radiologists on the staff of the hospital to Europe to make a special study of the latest methods of treatment by radium.

Some £1,200 has been similarly raised in Capetown; appeals for funds have been issued or are in contemplation in Durban, Kimberley, Bloemfontein, and Port Elizabeth, and at some of these places substantial sums have been provisionally promised.

The amount required for the purchase of radium alone as estimated above would be something just under £90,000, but funds would also be required for incidental capital expenditure in providing accommodation for its safe custody and for treatment, so that it is clear that a total capital expenditure of at least £100,000 would be required.

There would seem to be a strong case for the Union Government coming to the assistance of the Provincial Administrations in this matter and setting aside a substantial sum as a grant towards the establishment of the radium centres recommended—the fund to be vested in the Minister of Public Health

and contributions made on the recommendations of the Department of Public Health acting in consultation with the Treasury. Grants from the fund might be made on the £ for £ basis on donations or bequests from the members of public, local authorities, and other bodies and grants by the Provincial Administration.

The Union Health Department could make adequate arrangements through the Provincial Administrations, medical schools, and hospital authorities for the custody and supervision of the radium and its utilization to the best advantage, thus obviating the establishment of a special central body and considerable annual expenditure for administration and supervision.

If these suggestions were adopted, Parliament would not necessarily have to set aside the whole amount in one year. The Johannesburg Hospital Board would be able to take advantage of the grant immediately, and doubtless it would be quickly followed by Capetown. In the first year, probably about half the total amount would be required, but during the subsequent year or two it should be possible to organize the other centres. In Bloemfontein there is at present no pathological laboratory, and it would probably be necessary to appoint a competent pathologist to the hospital staff. A similar difficulty at present exists at Port Elizabeth, but the Institute for Medical Research, with the assistance of the local authorities and the Government, is about to establish a branch laboratory at that centre.

15. *Goitre*.—In the light of experience of this disease in other countries, notably Switzerland, Britain, and the United States, some inquiries regarding goitre were made by the Department in previous years, but although occasional sporadic cases were known to have occurred in certain parts of the Union, no endemic prevalence of the disease was discovered.

In February last, however, an Assistant Health Officer of the Department investigated a reported prevalence of the disease in certain remote localities in the Uniondale District, through which flow tributary streams to the Coega River, and found the report to be substantially correct.

In about half of these valleys a considerable percentage of the inhabitants suffer from simple goitre; in the case of the Hoeree Valley it was estimated that about 65 per cent. of the total inhabitants show definite signs of thyroid enlargement. A history was obtained of two deaths during the past few years from extreme enlargement of the gland.

It is hoped to obtain the co-operation of various research institutions in the Union in investigating the soil, water, food supplies, and other factors which may bear upon the causation of the disease, notably their iodine content.

In the meantime, in view of the considerable number of sufferers, this Department is arranging to make generally available ounce packets of salt, each containing $\frac{3}{4}$ grain of sodium iodide, which, when mixed with ordinary salt according to instructions on the package, will form "iodised salt" in suitable strength for consumption with food. These will be on sale at a very low price in grocers', chemists', and general dealers' shops in the district affected, and will be supplied free of charge by the magistrate to those unable to pay. The attention of all living in those areas will be drawn to the disease and its remedy by means of a suitably worded leaflet distributed by the police and otherwise.

This disease is not common in the Union, but other small isolated groups of cases are believed or suspected to exist in the Pretoria District and one or two other localities. Further investigations are being made.

16. *Dietetics*.—Only of recent years has medical science fully realized the great importance to health and development of the composition of the food we eat. Valuable experimental work has been, and is being, done in many countries to determine the food value of each article of diet, and also to ascertain the combinations and proportions which yield the best results under different conditions of age, occupation, climate, etc. An important result of these investigations has been the discovery of vitamins or accessory food factors which are present in minute quantities in certain articles of food, and which play a very important part in the maintenance of nutrition and health.

This new knowledge and experience has helped to explain the causation of certain diseases which were formerly obscure, but which are now known to result from the *deficiency* of one or other vitamin, or sometimes of certain mineral salts. For instance, lack of green foodstuffs or fruit juices for

long periods, in a diet composed mainly of cereals or unsuitable proteins, is apt to result in scurvy; lack of sufficient calcium and phosphorus, or of Vitamin D, in the food of expectant mothers and of infants will result in the formation of soft bones and teeth and consequent ill-health and poor development.

This Department's pamphlet [No. 194 (Health)] on "Food and Health" gives further details on this interesting and important subject.

The Department has during the past year carefully revised the dietaries in use in the various institutions under its administration, so as to bring them into line with modern knowledge. The principal changes found necessary were the reduction of carbohydrate and increases of the fat and Vitamin C content of the diet scales.

The dietaries in use in prisons and gaols in the Union have also been scrutinized and revised scales prepared and submitted to the Director of Prisons with a view to preventing the occurrence of food-deficiency diseases in prisoners. Similarly, in connection with boarding institutions under the Union Education Department, suitable diet scales have been framed and furnished to the Secretary for Education.

In Kenya Colony an important dietetic and biochemical investigation into the food values of native diets is being carried out under the British Committee of Civil Research, and has already brought out facts of great value, showing the prejudicial effects of defective diets on growth and nutrition. The extension to the Union of an investigation of this kind—in regard to the diets of both Europeans and natives—would yield very useful results.

17. *South African Red Cross and St. John's Organizations.*—Owing to the Great War terminating in 1918 soon after the "Our Day" appeal for funds issued by the Joint Council of the British Red Cross Society and the Order of St. John of Jerusalem in England, the Joint Council thereafter realizing its war assets, found itself in possession of funds which were more than adequate to meet all its liabilities, and out of the surplus made large grants for the alleviation of sickness and suffering among the general population of the United Kingdom. The fund had, however, been wholeheartedly supported by the Dominions and Colonies, and the Joint Council accordingly decided to allot half a million of the surplus for overseas grants. Of this amount, £50,000 was allotted to South Africa, in the hope that it would be usefully applied for the extension of a hospital, the establishment of a nursing association or any similar scheme or schemes for alleviating distress caused by the War in the Union of South Africa, the exact object being left to His Excellency the Governor-General, Lord Buxton, to decide.

Lord Buxton, who considered that the Government should have one organization to deal with, decided that before the money could be accepted a Joint Council of the Order of St. John and of the Red Cross Society ought to be brought into being in South Africa. At a conference of both organizations held in July, 1920, in Capetown, the principle of forming a Joint Council was agreed to and a recommendation was made to His Excellency that the funds should be devoted to the establishment of a tuberculosis sanatorium at which returned soldiers and their dependents should have priority of admission.

The first meeting of the Joint Council was held on 4th May, 1921, at which an agreement between the two bodies was adopted and the principle that the whole of the £50,000 should be used on capital expenditure for tuberculosis was affirmed.

The money was received in due course, but at the next meeting of the Joint Council, held in Johannesburg on the 6th December, 1921, it was decided to pay over £3,000 to the King Edward Order of Nurses, this amount having been promised to that body by Lord Buxton, and to utilize £10,000 of the capital sum towards the establishment in Johannesburg of a tuberculosis clinic, despite the advice tendered to it by both the Municipal and Union Health Departments that there was no real need for such an institution in Johannesburg. The clinic was in due course established, but it was a failure from the start and in due course the buildings were handed over to the University at a nominal rent for use in connection with the medical and dental school.

The establishment of the clinic in Johannesburg led to a good deal of misgiving and irritation in the other Provinces and efforts were made from time to time by representatives from the other Provinces to secure portions of the remaining capital for various local projects. Meanwhile a considerable proportion of the interest on the invested capital was being spent on annual meetings of the Joint Council and "administrative" items.

Eventually at a meeting on 12th May, 1928, it was decided to divide the capital and interest remaining, amounting to some £40,000, equally between the two organizations, subject to the conditions that the funds and all interest accruing therefrom be used solely for purposes mentioned or included in the Red Cross-St. John (England) Act, 1918, and that a written undertaking be given by the trustees of the constituent bodies to that effect; also that the funds so allocated be invested in trustee securities, only the interest therefrom to be available for such purposes unless a certificate has first been obtained from the Chief Justice of the Union stating that special circumstances of national emergency or widespread suffering and distress have arisen, which, in his opinion, justify and render desirable the utilization of part of the capital funds.

The Central Executive of the Red Cross Society further divided up its share of the capital sum between the various provincial branches of the Society as follows:—

Transvaal (£7,500, less £5,000 already received in connection with the erection of the tuberculosis clinic—the other half of the £10,000 spent on the clinic being regarded as in respect of St. John's)	£2,500
Cape	9,000
Orange Free State	3,000
Natal	5,500

The Joint Council of the two bodies, which was designed to enable the Government to deal in any national emergency with one central body, has therefore dissolved, and had nothing further happened there would have remained two bodies with Union-wide organizations. Unfortunately, however, the Cape branch of the South African Red Cross Society has formally withdrawn from the Central Executive of that organization and Natal has practically followed suit. The Cape branch of the Society was very active during the War period, but has since done little, except in connection with ex-soldiers and their dependents. The Transvaal branch, on the other hand, has been most energetic in establishing units of V.A.D.'s, who receive a useful training in first-aid and home nursing. There are at present approximately 1,000 Red Cross V.A.D.'s in the Transvaal, who are available for local service in any national emergency. In addition, this branch has widely and very successfully organized a Junior Red Cross movement amongst children of the Province, and in conjunction with this Department has arranged and carried out educative and lecture tours by motor-van through the malarial areas of the Transvaal and the plague-infected districts of the Free State; also it has co-operated with the Provincial Education Department and Union Health Department in organizing camps at which school children suffering from bilharziasis have been treated.

The Orange Free State branch has organized detachments of V.A.D.'s, while the Natal branch has spent a good deal of money in connection with the after-care of tuberculosis patients and has also established some V.A.D. units. Thus there is at present a Red Cross V.A.D. organization in three of the four Provinces, and the S.A. Red Cross Society has undertaken, under an arrangement with the Department of Defence, to provide 200 trained V.A.D.'s, whenever so required by that Department, for general service with the South Africa Military Nursing Service.

The Cape Red Cross Society has so far failed to undertake any Red Cross work of a peace nature—as has been done by practically every other similar organization all the world over—and has delegated teaching work in connection with first-aid and home nursing to the St. John's body. It has considerable funds—apart from the £9,000 it recently received as its share of the 1918 grant from the English Joint Council—but it takes the view that, as these were subscribed for war purposes, they are not available for Red Cross work of a peace nature. It has, however, taken no steps to clear up and, if found necessary, to amend the position in this connection, and has, in other and material respects, disregarded its own constitution and the procedure usually followed by similar bodies administering funds subscribed by the public. For instance, it holds no annual meetings, after notification to subscribers and the public, for the submission of accounts and the election of office-bearers for the ensuing year; it publishes no annual report and accounts; when vacancies, by death or otherwise, occur on the original committee new members are co-opted by the remaining members. This committee has an extremely creditable record of work during the Great War, and is capable of rendering very valuable services to the community and the State in the wide and varied field of activities covered by the modern conception of Red Cross work, but at present its field of usefulness is a narrow and diminishing one. It is sincerely to be hoped that it will, before long, put its house in order and broaden its outlook and activities.

Order of St. John of Jerusalem.—This organization is well established in South Africa. The ambulance brigade is organized in the Union into four districts corresponding with the four Provinces with a fifth district representing the South African Railway and Harbours Administration. It is at present under the command of Dr. Bennie Hewat as deputy chief commissioner for South Africa. A large number of men are trained in ambulance work, and are constituted as divisions of the brigade, and a good many women are similarly trained for nursing divisions. The Order of St. John of Jerusalem has mainly operated in the past in the larger centres, and particularly amongst the railway staff; the Department now makes it a grant of £150 per annum in order to encourage the organization to extend its field of activities to the smaller towns and villages of the Union.

18. *Railway Water Supplies.*—Complaints have at various times been received of persons developing typhoid fever and other water-borne disease shortly after completing railway journeys during which water was drunk on the train. The Department has now inaugurated a system of supervision of railway water supplies. Assistant Health Officers include in their inspection duties the source and nature of such supplies. In addition, officers of the Department periodically take samples of water from sleeping and dining coaches and kitchens of arriving trains, and these samples are examined by the Government Pathologists in Capetown and Durban.

As the result of these investigations the Department has been able to draw the attention of the Railway Administration to the possibility of dangerous pollution at certain of its sources of supply; in a few instances, water taken from passenger trains has proved to be contaminated.

The General Manager of Railways and Harbours has now arranged for the Consulting Chemist to the Railway Administration and the railway staff to assist the Health Department in connection with this system of supervision.

19. *Official Uniforms: Rational Clothing.*—In November, 1928, an inter-departmental conference convened at the suggestion of the Secretary for Public Health was held in Pretoria under the chairmanship of Dr. G. A. Park Ross, Assistant Union Health Officer, at which the Departments of Defence, Posts and Telegraphs, Prisons, and Police were also represented. The object was to discuss, in the light of recent knowledge, the type of uniform—as regards both material and design—best suited to the varying climatic conditions of South Africa, the needs of the various Departments which have uniformed staffs, and the suitability or otherwise of the various service uniforms at present in use.

At the conference a number of resolutions were agreed to, and these are at present engaging the attention of the Departments concerned.

I have the honour to be, sir,

Your obedient servant,

J. ALEXANDER MITCHELL,

Secretary for Public Health and Chief Health Officer.

Department of Public Health,
Union Buildings, Pretoria,
4th October, 1929.

